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NOVEMBER 24TH, 1885.

FRANCIS GALTON, Esq., M.A., F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and signed.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

- From R. H. SCOTT, Esq., M.A., F.R.S.—*Acta Societatis Scientiarum Fennicæ*. Vol. XIV.
From the AUTHOR.—*Anthropologische Studien*. By Professor Schaaffhausen.
— *The Races of Britain*. By John Beddoe, M.D., F.R.S.
From the SECRETARY OF THE COMMONWEALTH, MASSACHUSETTS.—*Forty-third Report to the Legislature of Massachusetts, for the year 1884*.
From the BERLINER GESELLSCHAFT FÜR ANTHROPOLOGIE.—*Zeitschrift für Ethnologie*. 1885, Heft. 4.
From the INSTITUTION.—*Journal of the Royal United Service Institution*. No. 131.
From the SOCIETY.—*Catalogue of the Library of the Royal Society of Tasmania*.
— *Proceedings of the Society of Antiquaries of London*. Vol. X, No. 2.
— *Proceedings of the Royal Geographical Society*. 1885, November.
— *Journal of the Society of Arts*. Nos. 1720–1722.
— *Journal and Proceedings of the Royal Society of New South Wales for 1884*.

390 F. GALTON.—*Exhibition of Composite Photographs of Skulls.*

FROM THE SOCIETY.—Transactions and Proceedings of the Royal Society of Victoria. Vol. XXI.

From the EDITOR.—"Nature." Nos. 837, 838.

— "Science." Nos. 143-145.

— Matériaux pour l'Histoire de l'Homme. 1885, Novembre.

The election of the following new members was announced:—
W. SETON KARR, Esq.; E. LAWRENCE, Esq.; Dr. R. MUNRO,
and Dr. W. SUMMERHAYES.

Mrs. BENT exhibited a number of Greek Dresses and other objects from the islands to which reference was made in Mr. Theodore Bent's paper on "Insular Greek Customs" (p. 401).

Dr. EDWARD B. TYLOR, F.R.S., exhibited a collection of Tunduns, or bull-roarers, from Australia (p. 422).

Mr. C. H. READ, F.S.A., exhibited a collection of Ethnological Objects from Tierra del Fuego, consisting of models of a canoe and its fittings, bows and arrows in skin quivers, parts of dress, shell necklaces, &c. These specimens were collected from the natives at and around Ushuwia by one of the officers of the South American Missionary Society, and were sent by him to Mr. E. A. Holmsted, a gentleman living in the Falkland Islands. Mr. Holmsted has since presented the series to the British Museum. Mr. Read also exhibited an oil painting by the well-known artist, James Ward, R.A., dated 1815. It represents three views of the head of an African, and was obtained at the sale of the collection of Dr. Barnard Davis, but was unfortunately without any record of the person represented. The picture has been given by Mr. A. W. Franks, to be hung in the Ethnographical Gallery at the British Museum.

EXHIBITION of COMPOSITE PHOTOGRAPHS of SKULLS.

By F. GALTON, Esq., F.R.S., *President.*

THE PRESIDENT exhibited twenty composite photographs of skulls, by Dr. J. S. Billings, of the War Department, Washington. They formed four series, referring respectively to Sandwich Islanders, Ancient Californians, Arapahoe Indians, and Whistitaw Indians. Six skulls of adult males of each of these races had been taken, and a composite had been made of each set of six skulls in the following five positions—front, back, side, top, and bottom. He remarked upon the great skill, from a photographic point of view, shown in making these composites, which were among the very best specimens of composite representation that existed, and he read the following extract from Dr. Billings's letter which accom-

panied the photographs:—"It required much more time than I had anticipated to work out a satisfactory method. I think we are now ready to prepare composites from those crania in our collection which are suitable for such a process. I send you herewith by mail a package of such composites, and also photographs of the craniophore we now use. The adjustments are made by means of vertical and horizontal threads stretched on folding frames, and a full description will appear in the next volume of Transactions of the National Academy of Sciences.

"All are made exactly half the natural size, and after trying several other scales I think this is the one best suited to composite photographs of crania."

The following paper was read by the author:—

On INSULAR GREEK CUSTOMS.

By J. THEODORE BENT, Esq., M.A.

HAVING studied folklore in many parts of Greece, I consider that the islands of the Ægean Sea afford the richest field for the collection of genuine customs which have survived from classical days. My reasons for this opinion are as follows:—In the first place, the islands were never, like the mainland, subjected to the incursions of barbarous tribes. This was especially noticeable in the isle of Andros, the most northern of the Cycladic group, and the easiest of access from the mainland by way of Eubœa. To-day the northern portion of Andros is peopled by Albanians. The Greeks to the south of this island are considerably affected by this intermixture, but here the Albanian wave ended, for in none of the other islands is there a trace of this race, which has succeeded in destroying the identity of so many Greeks on the mainland.

In the second place, the Italian influence, which was dominant in the Middle Ages in the islands, has left little trace beyond the towns on the sea-coast. The Latin rule was never popular amongst the Greeks, religious feeling ran high, and each party retained their peculiar customs and their cult. At Naxos, for example, the residence of the Latin dukes of the Ægean Sea, the Italian influence is still very marked in the towns by the coast; many Italian-speaking families, remnants of the old *régime*, still live there, but up in the mountains of Naxos there is not a trace of them; the villages are inhabited by Greeks of the most undoubted pedigree.

In the third place, during the Turkish times the smaller islands of the Ægean Sea have never been interfered with. Chios, Crete, Samos, &c., have been subjected to severe persecutions;

but the poorer islands, so long as they have paid their annual tribute, have been unmolested and allowed to govern themselves. Refugees from Crete, the Peloponnese, and Asia Minor have come there and settled to avoid Turkish oppression. They have built walled villages on the mountains to protect themselves from pirates, and have maintained their customs undisturbed ever since.

Hence it will be readily seen that the islands, especially the smaller ones, offer unusual facilities for the study of the manners and customs of the Greeks as they are, with a view to comparing them with those of the Greeks as they were. It is a very wide subject, and in my wanderings I have collected a great deal of material. I can only bring before your notice in the space permitted by a paper some of the leading points in connection with it. The following customs have been collected chiefly in the mountain villages and hamlets of the forty islands which during three winters I have visited.

We will begin with the customs concerning the first event in a man's career, namely, his birth. In the island of Karpathos, a remote and rarely visited island lying between Crete and Rhodes, last winter, I watched closely all the customs attending birth and childhood, and amongst many strange innovations I found several which have a distinct pedigree from classical times.

A peasant woman when she has a child calls upon St. Eleutherios to assist her in her troubles. He is the modern representative of the goddess Eileithyia, for gender has not troubled the learned men of the Greek Church, who have distributed the old pagan gods amongst Christian saints; thus the attributes of Demeter have been transferred to St. Demetrios, and those of Artemis to St. Artemidos, regardless of sex.

After the infant's birth it is considered desirable that the handsomest man should be the first to embrace it, so as to impart his beauty, and that the strongest and wisest woman should be the first to suckle the child for a like reason. This idea of imparting beauty and strength is an ancient one, for Herodotus tells us a story of how an ugly girl became the most beautiful in Sparta because her nurse took her to the temple of the heroine Helen, whom they met on the doorstep. And the plot of the Æthiopians of Heliodorus turns on the belief that the Queen of the Æthiopians became the mother of a white child because she had an image of Hesione before her when the child was born.

We are told by Apollodorus that seven days after the birth of Meleager the Fates told the horologue of the child, and the fire was lighted on the hearth.

There is a ceremony in Karpathos on this seventh day, called in consequence the *εφτά*, which bears a striking analogy to this, when the Fates are supposed to interfere to choose the child's patron saint. The family on this day are assembled, and in the middle of the room they put a large shallow round bowl; if the child is a male they put some of the father's clothes on the bowl; if a girl, some of the mother's, and on the top of them they place the child. For this occasion they have previously made a large wax candle, with seven coats of wax; this they chop into seven equal pieces and put the pieces into candlesticks, which are placed round the bowl, and each candle is called by the name of some saint. The family sit around in silence and prayer until one of the candles is extinguished, and this candle determines the patron saint of the child.

In the evening the bowl is filled with food, boiled barley and water, which is stirred till it becomes the consistency of dough, and into the middle of this they pour honey, and then they sit round to eat. When all this is consumed the doors are closed, more food is put into the bowl, and an old crone is deputed to go round the room to sprinkle it with holy oil, muttering as she does so, "Come, Father of Fates. Come here, Great Destiny, to settle the fortune of this child, that he may have ships, and diamonds, and cattle, and that he may become a prince." At this moment the Fates are supposed to enter the room, eat of the food, and to give good fortune, or *καλομοιράζειν*, to the child.

The Fates of to-day are supposed, as formerly, to be three in number, old women who inhabit inaccessible mountains, and none but people versed in magic know where they dwell. "I shall go to the mountains to call on my Fate" is a common expression of dissatisfaction with destiny. These Fates are always spoken of as spinning, and they preside over the three events of life—birth, marriage, and death. A discontented modern Greek who considers it a misfortune to have been born, a still greater one to be married, and the greatest of all to die, calls them "the three woes of destiny."

After the ceremony of the fate-telling is over the guests take their departure, and as they do so wish the mother a good forty days, that is to say, the forty days before she can go to church after the birth. There is a curious parallel to this custom mentioned in Censorinus, which runs as follows—"In Græcis dies habent quadragesimas insignes namque pregnans ante diem quadragesimam non procedit in fanum."

The days of childhood are associated everywhere in the islands with numerous superstitions, most of them doubtless of ancient date. There are the phylacteries, which they hang round the infant's neck to ward off the evil eye (*βασκανεία*), fevers, and other

ailments. For many of these diseases they have euphemistic names, like their forefathers. Child's colic is called τὸ γλυκὺ του, "its sweet," and minor ailments for which they have no name are politely called "unintentionals," ἀμελέττια, and small-pox is called εὐλομα, or praise. Children are supposed to be particularly exposed to those mysterious beings which still haunt the streams and cliffs of insular Greece, and which they call Nereids, and to protect them from the Nereids a Greek mother performs many curious rites. Very often these Nereids are supposed to have children themselves by human fathers: these children are for the most part malicious, evil-disposed urchins, and a frequent term of abuse to use to a naughty child is to say, "Charon must have been your sponsor, and a Nereid your dam." For children who are sickly, and consequently supposed to have been struck by a Nereid, the following cure is much in vogue. A white cloth is spread under the tree or cliff where the spirit is supposed to live. On this are put bread, honey, and other sweets, a bottle of good wine, a knife, a fork, an empty glass, an unburnt candle, and a censer. These things must be brought by an old woman, who utters mystic words and goes away, that the Nereids may eat undisturbed, and that in their good humour, resulting from the food, they may allow the sufferer to regain its strength.

More interesting even than this relic of the offerings the Athenians once made to the Eumenides on the slopes of Areopagus, is another custom which prevails in the islands of Keos, or Zia, for curing children which have been struck by Nereids. In Keos St. Artemidos is the patron saint of these weaklings, and the church dedicated to him is some little way from the town on the hill-slopes; thither a mother will take her child who is afflicted by any mysterious wasting. She then strips off its clothes and puts on new ones blessed by the priest, leaving the old ones as a perquisite to the church, and then, if perchance the child grows strong, she will thank St. Artemidos for the blessing he has vouchsafed, unconscious that by so doing she is perpetuating the archaic worship of Artemis, to whom in classical times were attached the epithets παιδοῖρὸφος, κουροῖρὸφος, φιλομείραξ. It is curious that on this island of Keos there are many traces of an extensive worship of Artemis, and many images of the fructifying Ephesian Artemis have been found there.

Such are some of the customs respecting birth and childhood which appear to have survived antiquity; let us now take the closing scene of human life, and in the extant customs attending death and burial we shall find many of a like nature.

Charon is as much a personified being in Greece to-day as he was two thousand years ago. Charon is a synonym for death.

"Charon seized him" is a common expression, and a clever popular enigma likens the world to a reservoir full of water, at which Charon, as a wild beast, drinks; but the beast is never satisfied, and the reservoir never exhausted.

Imagination is the soul of the modern Greek death-ballads which hired women sing over the corpses, hired women which remind us of those Carian women who were employed for the same purpose; and on hearing a death wail to-day one's mind is carried back to a Greek chorus, that of *Æschylus*, for example, when the virgins at the gate of *Agamemnon* indulge in poignant grief, beating their breasts and lacerating their cheeks; and on seeing these scenes one realises the wisdom of *Solon*, who forbade women to indulge in this excessive lamentation. The ideas in these ballads are many of them very beautiful. They sing to you of feasts and banquets in *Hades*, where the dead are eaten for food; they tell you of the gardens of *Hades*, where the souls of the departed are planted and come up as weird plants. As an example, I will give you a literal translation of a death-wail I heard last winter in *Karpathos*:—"Charon wished to plant a garden; the aged he planted, and they came up as twisted lemon trees, the young as erect cypresses, and the little children he put as flowers in his vases."

King Charon is not the Death of the Middle Ages, the skeleton with the scythe in his hand; he is the Homeric ferryman; he rows souls across to *Hades* in his caïque; he is a hero of huge stature and flaming eyes of colour like fire (*cf. πορφύρεος* in the *Iliad*); he goes round to collect the dead on horseback. So in olden days a horse was the symbol of death, as we see on so many tombstones. Charon, too, can lurk in ambush to surprise his victims, and can change himself into a swallow, like *Athene*, who perched on *Ulysses'* house on the day of the murder of *Penelope's* suitors. Charon's palace in *Hades* is decorated with the bones of the departed, and the dead who haunt it are for ever planning to return to the upper air, and form schemes for so doing which Charon always discovers; sometimes even they manage to steal his keys, but in vain.

There are traces, too, of *Lethe* in modern folklore, as a river of which the dead drink and forget their homes and orphan children, and in animal life there is a parallel case. A shepherd knows of a certain grass on the mountain top, called "the grass of denial," and when flocks eat thereof they forget their young.

Such are the things which these wailing women sing over the corpses. In the mountains of *Naxos*, over the dead body of a baby, I heard the following poetic words:—"To-day the heavens are darkened, the sun is obscured. To-day the child is cut off from his parents. It was not a tree that you could fell it, it was not a

flower that it should fall, but it was a weak young tendril which twined itself around their hearts! Would that I could descend to Hades, and gnash my teeth. For, lo! the worms of the earth to-day have joy. Whenever I think of thee, my darling, whenever my mind ponders on this grief, as a sea I am disturbed, as a wave my mind is troubled!"

In this village they actually retain a trace of the old "obolos for Charon," the freight money. It is only in the name *ναῦλον*, "freight money," which they give to the little wax cross, with I X N *Ἰησοῦς Χριστὸς νικᾷ*, "Jesus Christ conquers," engraved thereon, which is put on the closed lips of the deceased. Thus has Christianity adapted to itself the pagan ritual. In Byzantine times, long after the introduction of Christianity, coins of the Eastern Empire have been found in tombs, placed on the skulls.

Scattered amongst the islands are various customs connected with burial which carry us back into the past. At Seriphos each landowner is buried in a tomb on his own field, built like a little shrine. I never saw this custom in any other island, except Corsica, and it reminded one of the days when an Athenian left in his will instructions that he should be buried in his own land.

In one village of Karpathos they bury their dead in tombs attached to the churches and belonging to various families. In these the body of a defunct member is deposited without any earth, and then allowed to decay, so that a noisome odour is generally the result in hot weather; into the cement at the top of this tomb they insert plates. I asked the reason for this, and none whatsoever could be given; it is evidently a survival of the old feast for the dead, which was laid out in the tombs. It was a curious coincidence that in some ancient tombs which I opened not far from this very village I found the plates thus set out with bones of fishes and traces of other food on them which had been there for over two thousand years.

Many of the ceremonies concerning burial are of ancient origin; there are the *κόλλυβα*, that is to say, boiled wheat, adorned with sugar plums, honey, sesame, basil, &c., which are presented to the dead. Sometimes they call these *μακάρια*, or blessed cakes, out of euphony no doubt; these *κόλλυβα* are put on the tombs on stated days after the decease, with additional lamentations, and remind one forcibly of the ancient feasts for the dead which were likewise offered on stated days, and the idea of offering boiled wheat is but a survival of that embodied in the story of Demeter and her daughter, and expressed in Christian language by "sown in corruption and raised in incorruption."

Then again the vampire dread is widely extant still in the

isles of Greece, the belief that a wicked man cannot rest after death; they say that if the flesh is not decayed off the bones at the expiration of a year, when they are removed from the tomb to a charnel house, the spirit of the deceased wanders about, and "feeds on his own," as the expression goes, that is to say, he sucks the blood of his relatives, and thereby derives force for his ghostly wanderings. This reminds one of Homer's story that the shades in Hades believed that by filling themselves with blood they could return to life, and consequently eagerly lapped up the blood of slaughtered sheep.

The personification of the mysterious is as vivid to-day with the Greek islanders as ever it was with their forefathers. Charon we have seen as the personification of death. Consumption in like manner is personified in many places, and is called an Erinys, four of whom always stand at the four corners of the room where the patient lies dying, so that they may pounce on those in attendance; consequently consumption is considered by them to be an exceedingly infectious malady.

For every branch of atmospheric phenomena these simple islanders offer explanations of their own, which reflect the colouring of ancient days.

The sun is still to them a giant, like Hyperion, bloodthirsty when tinged with gold. The common saying is that the sun "when he seeks his kingdom (*βασιλεύει ὁ ἥλιος*) expects to find forty loaves prepared for him by his mother to appease his hunger after his long day's journey." Woe to her if these loaves are not ready! the sun eats his brothers, sisters, father and mother in his wrath. "He has been eating his mamma" is said when he rises red of a morning. It is curious to follow out the traces of the worship of Apollo in the modern prophet Elias. Every highest peak in every island is dedicated to this prophet, as of old they were dedicated to Apollo, and *Ἡλίας*, Elias, is an obvious transition from *Ἥλιος*, for the Eastern Church always tried to combine the ancient name and attributes with the modern worship as nearly as possible.

Prophet Elias is considered to have power over rain; in times of drought people assemble in crowds in his church to pray for rain. When it thunders they say the prophet is driving in his chariot in pursuit of demons.

Pretty allusions to the Dawn are frequent now in popular verse; it is the Virgin who has supplied the place of Eos: she is the mother of the sun; she opens the gates of the east that her son may pass through; and of the all-glorious life-giving sun the modern Greek peasant is extravagantly fond. He is the pattern of perfect beauty; "beautiful as the sun" is a constant expression to describe the beauty of a maiden, and I have heard

an island mother say, "Perhaps the sun will carry a message for me to my child," when she was speaking of her daughter in service somewhere on the mainland. It is the survival of the idea that Sophocles puts into the mouth of the dying Ajax, who appeals to the heavenly body to tell his fate to his old father and his sorrowing spouse. The belief that the sun is in danger when obscured by an eclipse is somewhat exploded now; yet there are those living who well remember the days when people would come out with brass kettles to drive away the evil demons which were threatening the life-giving sun, traces of which custom still survive in songs.

Again, the north wind is a real personage to a Greek islander: *κύρ βορέας*, Mr. Northwind, as they call him, is a constant and dreaded visitor in winter. He lives, they say, "somewhere up there," pointly vaguely towards Thrace, in a palace of ice and snow; but Mr. Southwind chose to blow one day and melted it all, so that nothing was left but his tears, which flowed down towards the river. In Tenos there exists a legend that the winds live in caves at the north of the island; they tell you how Michael the Archangel once slew two refractory north winds and placed pillars on their tombs, one of which rocks when the north wind blows. What a curious survival this is of the legend of Hercules who slew Zetes and Kalais, sons of Boreas, near this very island, with his arrows, and over their tombs were placed two stelæ, which rocked when Boreas blew!

Again, according to popular belief the twelve months are twelve handsome young brothers, Pallicari, who live together and rule the world in turn; of these brethren, March, the trying month of spring, is represented as the most capricious. During March the mariners dread to go to sea, and the shepherds abstain from going up to the mountains till his reign is over. March, the fickle swain, who dwells with a lovely but crossgrained mistress, and is delighted at her beauty, but grieves at her anger; March, who has deceived his eleven brothers, and for so doing has got a beating; March, who was so angry with an old woman for thinking he was a summer month, that he borrowed a day from his brother February, and froze her and her flocks to death,—all these things, and more besides, a Greek will tell you in order to illustrate the fickleness of this dread month.

Thus do these islanders love to personify what they do not understand in nature. On one occasion our muleteers told us that a certain spot high up in the mountains of Naxos was called the wind's dancing place, *ανεμοχορευτα*; it was a windy, misty day, and suiting the action to the words he began to perform some of the agile figures of the Syrtos dance to show us how he imagined the elements to dance.

Let us now glance at the industrial life of a Greek islander, and we shall come across many traces of antiquity still existing. In connection with the planting of vineyards they have quite a Bacchic festival in many islands. On the numerous feast days of the Virgin, after matins are over, the man who desires to plant a new vineyard calls together fifty or more men, according to the size of the field which he intends to plant. To each man he hands a spade, and then he fills skins with wine, and brings out joints of goat's flesh roasted for the occasion; then the company start off in high glee, singing as they go, and preceded by a standard-bearer holding a white banner. During their intervals of rest they consume the goat and the wine, and then work till the vineyard is planted—for it must all be done in one day—and in the evening they return home with their spades, their hoes, and the wine-skins empty, somewhat the merrier for having imbibed the contents. It is curious in Naxos, the ancient home of the wine-god Dionysos, to find still traces of this god. St. Dionysius, the namesake of the ancient wine-god, is greatly worshipped here, and about him a curious legend is told, clearly pointing to the ancient cult; it runs as follows:—St. Dionysius was on a journey from the monastery on Mount Olympus to Naxos; as he sat down to rest, he saw a pretty plant, which he desired to take, and to protect it from being withered by the sun he put it into the bone of a bird. He went on and was surprised to find that it had sprouted before his next halt, so he put it, bone and all, into the bone of a lion: again the same phenomenon occurred, so he put his treasure into the leg-bone of an ass. On reaching Naxos he found the plant so rooted in the bones that he planted them all, and from this up came a vine with the fruit of which St. Dionysius made the first wine. When he had drunk a little of it he sang like a bird, when he had drunk more he felt as strong as a lion, and when he had drunk too much he became as foolish as an ass. This legend is told in Naxos to-day in an island where place-names still recall the old worship of Dionysius; one of the loftiest mountains is called Korōnon, reminding us of the nymph Koronis and the infancy of the wine-god, and an excellent wine made in Naxos is called now *Τοῦ Διονύσου τὸ κρασί*—perhaps the same that Archilochus once likened to the nectar of the gods.

On the adjoining island of Paros a church is dedicated to the "Drunken St. George," an instance of how the modern Greeks still love to deify the coarser passions, and on inquiring into the reason, I was told that on the 3rd of November, the day of the anniversary of St. George's death, the Pariotes usually tap their new-made wine and get drunk; they have a dance and a scene of revelry in front of this church, and this Bacchic orgy

is hallowed by the presence of the priests. Only on one island, Thermia, or the ancient Kythnos, did we find the resinated wine which is commonly drunk on the mainland. Many people imagine this to be a custom derived from an Albanian source, namely, that of covering the inside of the barrels with resin to preserve it. The fact is that Kythniote wine will not keep without it, and we have instances to prove that this is not altogether a modern custom. Plutarch tells us how the ancients put seawater into their wine to give it a flavour, and how the casks were sometimes smeared inside with pitch; the thyrsos of Bacchus had a pine cone at the top of it; and furthermore, that the Euboeans actually did put resin into their wine to flavour it.

In agricultural and pastoral life we have abundant relics of a bygone age. In Karpathos, for example, before the sowing of grain they do this:—The farmer takes a portion of the grain that is to be sown and a rose to church. These are blessed during the liturgy. The rose is broken up and scattered about in the first field which is sown that year as a sure emblem of abundance and success. Thus did the ancients at the festival of *προηρόσαι* before the seed was sown in the ground. In many islands the shepherds wear on their feet sandals of undressed ox-hide, just a flat piece of leather fastened by thongs of the same hide to the feet; they are most comfortable for rough mountain journeys, and identically the same that Homer described. In Amorgos a two-pronged hoe is used for trimming vines, and is called *δίκλα*, an obvious contraction of the same tool which Sophocles described, and called *δίκελλα*. In Karpathos and Keos they have a curious way of preserving grain; holes are dug in the earth near the threshing-floor, and when the grain is ready they put it in, having first been careful to cover the inside with straw; after the grain has been piled up, so as to form a sort of cone-shaped mound, they cover the whole with straw, and place on the top of this some of the stiff native brushwood, and then they cover their mound with earth. Rain never penetrates these granaries, which are now known as *λακκοί*, the classical term for them, *σιρὸι*, having been changed, while the custom itself has been preserved. The *φυλακίον* of Aristophanes, a skin for holding the grain necessary for household purposes, exists still; in some places it is called *φλακί*, in others *φλαῖς*. In a shepherd's village on Karpathos, where we spent some time, we found many exceedingly interesting words in existence which occur nowhere else in Greece; their mules they term *κῆματα*, or possessions, and do not understand you when you use the usual modern Greek word for mules; their goats they call *χιλία*, or thousands, a truly patriarchal word, pointing to flocks which cannot be counted for number; they

have peculiar words for distinguishing the several kinds of goats and sheep which you find in the pages of Liddell and Scott, but in no glossary of modern Greek words. If a woman wishes to carry a light from one house to the other she puts it into a reed, which here alone have I heard termed *ναρθηκα* or *ναρθηξ*, the same word and the same use for the reed which mythology teaches us Prometheus employed when he brought down fire from heaven.

In their daily life, in their methods of catching fish, in their planting of crops, in their medical and religious lore, endless parallels can be found to antiquity, which prove beyond a doubt that in these islands, remote from civilisation and alien governments, a race of people live of pure Hellenic blood, unadulterated by admixture with other races; they are not numerous, it is true, and for a pure Greek, as for a pure Celt, you must search in mountain villages and unfrequented bye-paths.

APPENDIX by MRS. BENT.

The following is a description of the articles collected during three winters in the Sporades and the Cyclades which I have the honour to lay before the Institute for inspection:—

- A figure dressed as a woman of Niseros, in a short narrow dress of white cotton, embroidered round the tail and round the square neck, and with wide sleeves, embroidered in stripes of various coloured silks, and with silver embroidery on the shoulders; over this a very wide dress of turkey-red, half a yard shorter, and sleeveless. A black kerchief across the forehead, and a yellow one over that, hiding the mouth.
- A figure dressed as a woman of Karpathos 150 years ago; raw silk embroidered with a wide border in green, dark blue, and red silks, also all round the neck and down to the knees. The sleeves are square, and the pattern mostly a chequer. The dress is 8 or 9 feet long, and a great tuck forms it into a double skirt. Embroidered trousers. Round the waist a silk scarf, embroidered, and on the head, over a black kerchief, a long silk scarf called *bolia* (*midojia*): three or four silver and gilt chains, &c., round the neck, and chains with drops across the brow, also pear-shaped silver-gilt ornaments with glass garnets hooked on the top of the head, with several chains coming down the cheeks, and rings about 4 inches across hanging from them.
- Bed valances from Ios, Naxos, and Keos. These consist of a silk embroidered border 6 feet long and a narrower border 10 inches up the sides sewn to a piece of linen, tucked in to the edge of the bed; having originated in the sheet having been adorned to hang over; still called *Sindhoni*, or sheets (*Σινδόνι*).

Sindhonia of Karpathos, one cotton and the other silk, and both embroidered very similarly in red and dark green. These are 2 yards deep; 18 inches at the bottom is more handsomely embroidered, and separated from the rest by a gold insertion $1\frac{1}{2}$ inches wide. In this island, where they have no bedsteads, they are used as wall hangings for festive occasions.

A Sindhoni of Niseros worked in brown, light yellow, and blue, and with a pattern resembling that of Karpathos.

Two pillow covers from Karpathos, silk, with green and blue border on both sides, that they may show when the pillows are stored in piles.

Two towels of Karpathos, cotton, with woven coloured ends.

Two silk towels, one with coloured cotton ends, the other gold. All the house linen being hung on the rafters, these smart ones are hung over for show.

A swaddling band from Karpathos, 150 years old, cotton closely worked with black and red silk on the outer end, and with a small sprigged pattern on the rest.

Two towels from Samos with deep lace ends, partly needle and partly pillow.

A cotton hood from Apeirenthos, in Naxos, with a border of blue and red cotton (birds), worn as a coal-heaver wears a sack. Some fine silk pillow lace from Crete.

A sabouna (*Σαμπούνα*), composed of a small pear-shaped gourd as mouthpiece, two reeds (one with a straw in it), and a goat's horn.

A syravlion, or pan-pipe, from Paros.

A whip from Mytilene, wooden handle, chain of twisted iron with four large rings on each link to warn mules of the long knotted thong.

Two rokas, sticks, about a foot long, prettily carved, stuck in the waistband to support the left knitting needle.

An *eikon*, given us in Mykonos to preserve from shipwreck.

A gilded crab-shell, with St. Nicholas, the present "Ruler of the sea," painted in it.

A bank-note, a card $1\frac{1}{4}$ inches square, covered with paper with the name of the Monastery of Spiliane and the signature of Kyrillos, the Prior, who issues them—legal tender in the Turkish island of Niseros. Two worth a penny: from Samos.

A half-drachme piece, pierced, with little blue and white ribbons, Greek colours, tied through: given to friends at a baptism.

DISCUSSION.

Mr. REGINALD STUART POOLE spoke of the great value of Mr. Theodore Bent's researches as a scientific effort to trace the evidence of the continuous existence of the Hellenic race. Such labours were no less valuable than the archæological explanation which accom-

panied them. In confirmation of the tenacity of the Greeks to their old customs, and the vitality of the race, Mr. Poole cited the remarkable fact observed by Mr. Flinders Petrie in Egypt, that the women of Naucratis, who reminded him of the Hellenic type, went unveiled, whereas the Shemite population of San (Zoan) were unusually strict for Egyptians in the custom of veiling. It was often carelessly alleged by the enemies of a race with great qualities, especially in domestic life, that their loss of the characteristic brightness of the ancient Hellenes was due to a Slav origin, whereas the centuries of Turkish oppression were enough to account for so natural a consequence. It may be added, as another illustration of continuity, that travellers agree in recording the zeal of the Greeks in education, and the care taken to provide schools even in the remotest villages. It is said that Greek girls at Athens, when engaged as servants, frequently stipulate for leave to attend lectures. With respect to the special bearing of the legends of Charon in modern Greece on ancient belief, Mr. Poole thought that Charon's horse might, as Mr. Bent suggested, be connected with the much debated appearance of the horse in Greek sepulchral reliefs.

The following paper was read by the author:—

HISTORY of the GAME of HOP-SCOTCH.

By J. W. CROMBIE, Esq., M.A.

[WITH PLATE XVI.]

It is a notorious fact that children's games are often imitations of the more serious occupations of the grown-up people they see around them, and that a game once introduced is handed down from generation to generation of children long after its original has ceased to exist. Thus children continue to play with bows and arrows though their parents have long ago discarded those weapons; and many innocent-looking children's games conceal strange survivals of past ages and pagan times.

The game of Hop-Scotch¹ is one of considerable antiquity. As it is mentioned in Poor Robin's Almanac for 1667 it must have been a prominent game in England for several centuries; and it has spread over the whole of Europe, appearing under numerous *aliases* in England, Scotland, Ireland, France, Spain, Italy, Sweden, Finland, and other places.

The main features of the game are too familiar to need description. An enclosure is marked off on the ground and

¹ Probably a corruption of *Hop-score*.—Halliwell.

divided into several courts. Through those the player, hopping on one foot, successively kicks a piece of stone, taking care not to touch with his foot any of the division lines, and avoiding certain prescribed courts, till the last one is reached, when he turns and kicks it out again in the same way.

Signor Pitré attributes a solar origin to Hop-Scotch. The stone, he thinks, originally represented the sun, which is kicked through the courts as that luminary passes through the signs of the Zodiac.¹ While Signor Pitré's opinion is entitled to high respect, his theory appears to me quite untenable; for it would require the number of courts into which the figure is divided to be twelve, whereas in no place where the game is played are there twelve main divisions, and very seldom can this number be made up even if subdivisions be reckoned.

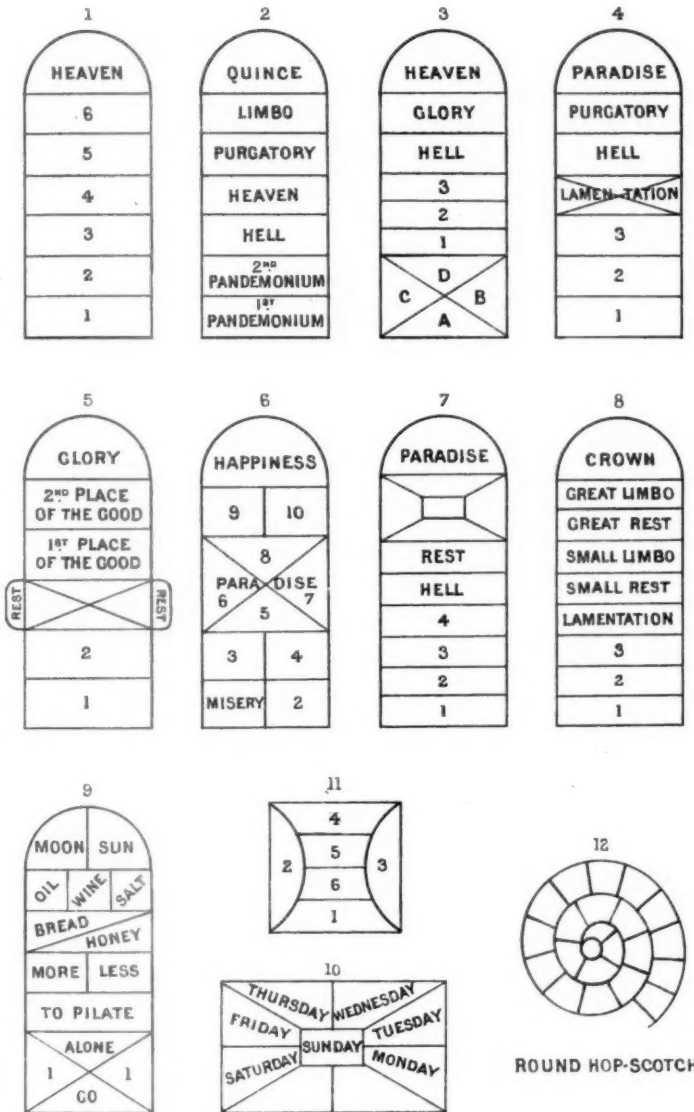
After examining a large number of figures collected from different parts of Europe,² I find that the form of most frequent occurrence, and the one from which all the other varieties appear to have developed, is that of figs. 1 and 2, Plate XVI, where a rectangle is divided into six compartments and crowned by a seventh, and almost invariably semicircular court. This figure is still in use in many parts of Spain, Italy, and Portugal. As they acquired skill, children would very soon wish to render the game a little more difficult by complicating the figure. Thus we find at Venice, though the seven courts of fig. 1 are retained, a vertical line is drawn down the centre of the figure bisecting each court. Again, one court is often split into four by diagonals, as at Fregenal, Spain (fig. 3, Plate XVI), and La Marca, Italy (fig. 4). A figure with seven courts, one of which is split by diagonals, is also used in England.³

"When we wanted a really good game," an Irish lady writes me, after describing the figure used in her youth, "we used to draw all the lines double so as to make more courts." It is by some such process that fig. 8, Plate XVI (used in Mazzara, Italy), has been evolved. This figure contains nine courts, but it will be observed that the names of two courts occur twice, which points strongly to there having been originally only seven. So in fig. 7, used both in France and England, the extra court introduced between that marked *Rest* and *Paradise* appears to be the embodiment of an entirely separate figure

¹ Pitré, "Guiocchi Franchuilleschi," xxxvii.

² The Italian, Spanish, and French varieties of the game are fully described in Pitré, *loc. cit.*; "Bibliotheca de las Tradiciones Populares Españolas," tom. iii; Belèze, "Jeux des Adolescents." For the information as to the method of playing the game in different parts of the British Islands I am indebted to numerous correspondents, especially to Mr. G. H. Kinahan, of the Irish Geological Survey.

³ "Loy's Handy Book of Games" (Ward, Lock & Co.), p. 12.



FIGURES OF THE GAME OF HOP-SCOTCH

(fig. 10, Plate XVI), which will be spoken of presently. On the other hand, we find many variations of the original figure which have gone in the direction of simplification, one or more of the seven courts being omitted. In Llerena, Spain (fig. 5, Plate XVI), there are only six courts, but the analogy of the nomenclature of a number of other Spanish figures points to the third court having been omitted. Similar omissions have produced fig. 6, Plate XVI, used in county Antrim, Ireland, and a number of others in various places. There is thus a considerable body of evidence to show that seven was the original number of courts in the figure. Even the children themselves seem to have been struck by this characteristic, for in several parts of Italy, Spain, and France they have given to the seven courts the names of the seven days of the week, and sometimes called the game itself "the week."

But even in the places where this is done, those names always co-exist with others which are widespread, and evidently very ancient. Although in this country the names of the courts have almost entirely disappeared, we still find the top court called *Paradise*. Now *Paradise*, *Heaven*, *Glory*, *Happiness*, or some such name, is applied to this court with the most striking frequency in every country in which the game is played, the few exceptions being where it has been supplanted by a name alluding to its shape, such as *Quince*, *Calderon*, &c., and even then *Paradise* is generally found in the name of one of the lower courts. In Sicily this court is called *Death*. *Purgatory* or *Hell* occurs almost as frequently as a name for one of the lower courts, and it the player has to scrupulously avoid alighting in. In Limerick the next to the last court is called *Caol*, meaning *Narrow*, or *Hell*; and *Narrow* occurs as a name of one of the courts in several parts of Spain and Italy. *Rest* is also a common name for one of the lower courts, and in it the player has the privilege of reposing for a moment and putting both feet on the ground.¹ *Misery*, *Lamentation*, &c., are found as names for the lower courts in many places, while *Limbo* also occurs with frequency. Let us now trace the course of the player on some of these figures. In England and France (fig. 7, Plate XVI), after traversing four nameless courts and *Rest*, he has to avoid *Hell*, pass through the four triangles (called *Culottes* in France), when at last he reaches *Paradise*. In La Marca, Italy (fig. 4), his course lies through 1st, 2nd, 3rd, when he enters *Lamentation*, and has to pass through *Hell* and *Purgatory*, after which he ends his wanderings in *Paradise*. In

¹ In some parts of Ireland the player, when he reaches the cross courts (fig. 8, Plate XVI), has to stand on one leg till he counts "seven times seven."

Fregenal, Spain (fig. 3), he passes through 1st, 2nd, 3rd *Hell*, and *Glory*, and he finds himself in *Heaven*. In Mazzara, Italy (fig. 8, Plate XVI), 1st, 2nd, 3rd, *Lamentation*, two *Limboes*, and two places of *Rest* have to be traversed before the *Crown* awards his completed labours. But in some places he gets off easier. In Villafranca, Spain, he reaches *Heaven* by passing through 1st, 2nd, 3rd, the *Place of Rest*, and the *Place of Asses*. In Llerena, Spain (fig. 5), it is even smoother sailing. There he enters successively 1st, 2nd, and the *Places of Rest*, then he passes through the *first* and *second quarters of the good*, and he soars into *Glory*. Let us now take the Seville figure (fig. 2, Plate XVI) as an example of a confusion of names. The top court has changed its name to *Quince* (*Gamboa*), and the central court is called *Heaven*. This alteration makes the player's course far less satisfactory, for after passing through 1st *Pandemonium*, 2nd *Pandemonium*, and *Hell*, he suddenly finds himself in *Heaven*, but only to be hurried out of it into *Purgatory* and *Limbo*, and after all he reaches nothing but a place called by the senseless name of *Quince*. The conclusion to which this curious nomenclature points is self-apparent, and when we add to it the fact of the game being called "Paradise" in Italy, and "the Holies" in Scotland, there can be little doubt that in early Christian times the children who played it, whether from their own inventiveness, or at the inspiration of their teachers, had some rough idea of representing the progress of the soul through the future state, and that they divided their figure into seven courts to represent the seven stages of Heaven, which formed a prominent feature in their eschatological beliefs.

It might be objected to this conclusion that it will not explain many names such as those in fig. 9 (used at Malaha, Spain), which is one of the most corrupted I have met with. But the originals of those names are often apparent corruptions of words which accord with the theory;¹ and, considering that they have been handed down for centuries through generations of

¹ I have been careful to select all my illustrations from cases where the meanings of the names were beyond dispute. In fig. 5, Plate XVI, however, there are two further names, *Palajanso* and *Calajanso*, applied to the diagonal courts. My inquiries as to the meaning of those corrupted words have not been successful. The name of the top court in fig. 8 is *Corna* (horn); but I think the analogy of several other figures indicates that this is a corruption of *corona* (crown). As an instance of how the names get corrupted I may mention the word *Plato* (silver), occurring at Dos Hermanas, which is evidently a corruption of *Pilato* (Pilate), frequently used in other Spanish figures. In Zafra, Spain, the penultimate court is called *Gato* (cat). I think that this may possibly be a corruption of the word *Purgatorio* (Purgatory), which is so frequently found elsewhere. To Spanish children this latter word would be a little difficult, and they would catch at the familiar syllable *gato*, just as our own do at *cat* in *catechism*. If this be conceded, the Zafra figure is a very perfect example. The seven courts are all simple, and called 1, 2, 3, *Rest*, *Narrow*, *Purgatory*, *Crown*.

children entirely ignorant of their original intent, and even of their meaning, the wonder is not that they are corrupted, but that they remain so perfect as they actually are. Even in the Malaha figure the names *Sun, Moon, Pilate*, and the formula at starting, *I go alone*, are not a little suggestive.

There remains to trace the earlier history of the game. Previous to Christianity it obviously cannot have existed in its present form, but games, in order to be as lasting as this has been, must not be invented, but grow. There is reason to believe that Hop-Scotch developed itself from a combination of several ancient games. Julius Pollux speaks of a game played by the ancients where they counted the number of hops which could be made on one foot, but no scores are spoken of.¹ The penalty of *ἐφεδρισμός* used in connection with an ancient game of marksmanship, and in which the vanquished player had to carry the victor on his back, has also associated itself with Hop-Scotch, and forms part of the game both in Spain and Italy.² It would seem, then, that the game of hopping got wedded to some other game consisting of a figure, some recess of which it was the player's object to reach. Whether this union took place before or after Christianity it is difficult to determine, but certain it is that even now Hop-Scotch is played in many places, both at home and abroad, without any hopping at all, so much so that Sr. Ferraro³ suggests it may be a modification of the ancient game of quoits. We must therefore look for some pre-Christian game with a figure which would supply the remaining features of Hop-Scotch.

Pliny,⁴ in his description of the labyrinths, mentions casually a game played by the Roman boys where they drew labyrinthine figures on the ground. Now, labyrinthine figures are still used for Hop-Scotch, though far less frequently than those of the type already described. Fig. 12 is used in France, the inner circle being called *Paradise*. The same figure is found in England,⁵ and the game played on it called "Round Hop-Scotch," while a less perfect form of it also occurs in Scotland. Fig. 10 (which is not unlike a rough sketch of the Cretan labyrinth) represents another form the game takes in France, the same figure also being used for the game of Marelle. Fig. 11 is perhaps the transition between the two types. It is used at Villafranca, Spain, but a figure conforming to the ordinary type obtains also in that place. It is therefore not unreasonable to suppose

¹ Jul. Poll., "Onomasticon," ix, 7.

² Pitré, "Guicocchi," p. 142; "Tradiciones pop. Espan.," iii, p. 203.

³ "Archivio per lo studio delle tradizioni popolari," p. 246. Palermo, 1882.

⁴ Pliny, xxxvi, 13.

⁵ Crawley, "Manly Games for Boys," p. 79.

that those labyrinthine figures may be survivals of a form of figure more ancient than those of the ordinary type by which they have now been superseded.

Moreover, we know that among the ancients the tradition of the labyrinths was more or less vaguely associated with the future world, and this might have suggested to the Christian children the eschatological ideas which they introduced into the game, even if the difficulties and wanderings of the labyrinth had not in themselves offered sufficient analogy to the wanderings of the soul in a future state. But how came the labyrinthine figure to be exchanged for that of the rectangle with the rounded end? It is well known that when Christianity replaced a pagan culture, it did not destroy, but assimilate. It adopted the stones of the old edifice, but it insisted on hewing them into Christian shapes. I can account for the transition of figure in the game of Hop-Scotch only by suggesting that this principle had been in operation there also. The Christian children, I believe, not only adopted the general idea of the ancient game, converting it into an allegory of Heaven, with Christian beliefs and Christian names; but they Christianised the figure also. They abandoned the heathen labyrinth, and replaced it by a form far more consistent with their ideas of Heaven and future life, the form of the Basilicon, the early Christian Church, dividing it into seven parts as they believed Heaven to be divided, and placing the inmost sanctum of Heaven in the position of the altar, the inmost sanctum of their earthly church.

Explanation of Plate XVI.

Various figures of the game of Hop-Scotch, as played in different countries of Europe.

Figs. 1 and 2 represent forms frequently used in many parts of Italy, Spain, and Portugal; fig. 3 is found at Fregenal, Spain; fig. 4 at La Marca, Italy; fig. 5 at Llerena, Spain; fig. 6 in co. Antrim, Ireland; fig. 7 in France and England; fig. 8 at Mazzara, Italy; fig. 9 at Malaha, Spain; fig. 10 in France; fig. 11 at Villafranca, Spain; and fig. 12 in France and England.

DISCUSSION.

Dr. E. B. TYLOR thought that the author had made out his case that the various forms of the game, especially in the South of Europe, point back to an original game probably in vogue before the Christian Era. In that case, for the source of the seven compartments we may perhaps look back beyond the Christian seven heavens to the seven planetary spheres from which these were derived.

Dr. E. B. TYLOR gave a verbal abstract of the following paper:—

On the MIGRATIONS of the KURNAI ANCESTORS.

By A. W. HOWITT, Esq., F.G.S., Cor. Memb. Anthropol. Inst.

Introductory Note.

It might well be thought an almost impossible task to indicate with any probability of certainty the directions followed by the early Australian tribes during their migrations. Savages keep no records except such as are handed down by word of mouth, and which in the process of transmission become so distorted by age and by imaginations of the transmitters that it is only very rarely that such legendary tales can be recognised as referring to events which probably once happened.

This is the case with the Australian tribes. Of their legends and tales there are but few which can be reasonably believed to relate to past events. Such are the Deluge legend of the Kurnai, Woiworung, and Coast Murring tribes; the Woiworung and Kurnai legend of Loän,¹ and perhaps also the legend of the migration into Gippsland of the "first old man Kurnai."² Such legends as these only throw a dim and doubtful light on some parts of the tribal history, such as their early migrations, and it is in this aspect that I now refer to them.

On this view I have thought it might be well to draft a preliminary memoir, which should have for its general object the broad delineation of some main lines of migration and for its special object the question, "From which stock did the somewhat abnormally developed Kurnai tribe spring?"

I do not propose to consider whence was derived the original stock, the Australian aborigines, but I start from the assumption that their distribution over Australia was from its northern shores, if not from an earlier continental extension still further to the north.

The Migratory Process.

The existing distribution of the class-systems, so far as I have yet been able to collect and compare them, leads me to think that the migrations have not been in an undivided stream advancing in an unbroken front across the continent, but in several streams which spread out on either hand of the main

¹ See p. 416.

² See p. 416.

routes wherever the conditions of water and food were favourable.

In other words, the migration has been diverted into various routes by meeting with obstacles such as waterless tracts or mountain barriers.

It seems to me that the most probable process by which this continent has been peopled has been this. It is reasonable to suppose that whenever a group of the aborigines, who were settled in some favourable spot, became too large for the natural resources of the locality, its younger members would spread outwards in search of new centres, from which in time new departures might again be made. It may, perhaps, be more correct to describe such a process of settlement by saying that from time to time "swarms left the parent hive" to take up a quasi independent existence on their own account, in some favourable locality, either already known to or to be sought out by them.¹

Besides this, which may be called the regular and orderly process of settlement, there must have been also what may be termed the irregular and disorderly process. Intertribal wars would tend to send forth "war-driven" emigrants; broken men escaping from individual or tribal vengeance, and couples who had broken the moral laws of their tribe, would seek safety in flight; and even, perhaps, the wreck of a "totem" may have escaped from a feud which involved it in an unequal strife with a related group far stronger than itself.² Instances illustrative of such causes have been made known to me, and in the past there must have been many fertile but unoccupied tracts into which the guilty or the unfortunate might flee and find a safe refuge from the pursuer. I shall have occasion to point out, when speaking later on of the Bidweli tribe of Eastern Gippsland, that there is evidence that out of such materials new tribes have been formed on the ancient social lines.

Whatever may have been the mode of settlement, there are

¹ According to Taplin, the Narrinyeri had a tradition that their ancestors were led by Nurundere, the Supreme Being, down the Darling and Murray Rivers, and thence east and west along the coast, where they were settled when the white men first arrived. "Native Tribes of South Australia," pp. 3, 55, 61. Wigg, Adelaide, 1879.

² Such a case might have arisen in the Wotjobaluk tribe of the Wimmera River. A "white cockatoo" man had killed one of the "black snake" totem, and according to the tribal custom he had to submit to spear-throwing by the kin of the deceased. He was speared during this ordeal, and, quoting my informant's words, "the old head-man of the Gartchukas (white cockatoo) threw up the piece of lighted bark he was carrying, and the fight ceased." To my question, "Supposing that the Wülnünt (black snake) men had continued their attack, what would have been done?" he replied—"If they had not ceased there would have been a war between all the Gartchukas and all the Wülnünts."

two main lines of march clearly indicated, namely, the eastern and western coast-lines. Others probably lay along the well-watered and generally fertile downs of the great dividing range, and perhaps also followed approximately the direction of the transcontinental telegraph.

Assuming that when the migration began, the physical features of the Australian continent were much as they are now, one line of advance would clearly be indicated as extending southwards from Carpentaria and the country extending eastwards to the sea. So far as the country proved favourable, population would spread, ascending the streams to their sources, and thence descending by other waters flowing on the one hand into the Pacific Ocean, and on the other into the great and arid expanse of Central Australia.

As the streams proceed further from the great dividing range of Queensland into the central depression they become more widely separated from each other by generally waterless and often almost desert tracts, until at length they are lost in the great saline depression in which lie a vast series of salt lakes, such as Lake Eyre.

Still further to the southward where the great dividing range approaches and finally enters into New South Wales, the rivers still flow widely separated from each other by dry tracts, but finally, as the Darling, Lachlan, and Murrumbidgee, contribute to the perennial stream of the river Murray.

Migrations in early times most certainly would extend down such great waters, and would thus become more or less completely isolated from their kindred who occupied adjoining rivers. Thus, in time, well-marked groups of tribes have arisen having certain characteristics in common; usually recognising kindred with each other, and also joining in the same initiation ceremonies. They are distinguished from each other by dialect, by variation of custom, often by variation of initiation ceremonies, and frequently from all other tribes by applying to themselves some special word meaning "man."

Such large groups are recognisable in the better watered parts of Eastern Australia, and even also in Victoria.

I have said just now that such great aggregates of tribes are frequently marked by the use of a common word meaning "man," which is restricted in use to their own males. Thus a very large group of tribes having the Kamilaroi organisation might be spoken of as the "Murri Nation," and this designation would bring them properly into relation with their southern and south-eastern neighbours, who use the word "Murring" or "Murrin" in the same sense. Similarly, a great group of tribes

occupying the country surrounding Lake Eyre, in South Australia, might collectively be spoken of as the "Kurna Nation."¹

In Eastern Victoria there would be found a large "Kulin Nation," and a smaller in the south-west of the colony to which the term "Mara" might be applied.

I suggest that these words signifying "man" may be conveniently used for distinguishing the great tribal aggregates referred to, and in this sense I use them in this paper.

My preceding remarks will have shown my views as to the general process of migration. A few more are now necessary before I proceed to consider of which migratory stream the Kurnai ancestors were most likely an offshoot.

One stream of settlement seems to have followed down the waters which unite to form the Darling, and to have thence traced the Murray River from the junction of the two, until, reaching the sea-coast, it spread east and west along it.

Its eastern termination may perhaps be recognised in the Mara Nation, which in Victoria coalesced with the Kulin, somewhere, so far as I can make out, about the southern slopes of the Grampian Mountains, and more to the east about Colac.²

Another stream which had followed the well-watered country southwards from the sources of the Darling River seems to have divided when meeting with the great block of mountains of which the Australian Alps are the culminating points. These people spread round the northern and western flanks of the mountains into Victoria, where they are represented by the Kulin Nation, whose termination in the south was in the Bün-worūng tribe, in the extreme south-eastern part of the Western Port District. The Kulin seem to have occupied all the flanks of the mountains from the Ovens River to Cape Patterson, and westwards as far as Geelong, Ballarat, and the sources of the Richardson River. Another branch of the same stream flowed round the eastern flanks of the mountains on to the Maneroo tableland, and down the southern coast of New South Wales, where as one of the Katungal tribes it formed, near Towfold Bay

¹ The *Kurnai Tribe* of Gippsland must be distinguished from the *Kurna Nation* of the Barcoo Delta. The term "Nation" which I now use must be understood as meaning no more than an aggregate of kindred tribes, without implying any kind of confederacy between them. I take this opportunity of pointing out that there is no warrant for the use, which I have observed, of the word *Murri* or *Murray*, as meaning "Australian aborigine." There is no word in the native languages having that meaning. Such words as *Murri*, *Kulin*, *Kurnai*, *Mara*, have a strictly local meaning. A male aborigine of Victoria is no more a "Murri" than a Scot is a Welshman.

² The Narrinyeri tradition quoted by Taplin ("Native Tribes of South Australia," p. 61) says: "Nurundere . . . led his sons, i.e., his tribe, down the southern shore of the Lakes, and there turned up the Coorong. There he appears to have met another tribe coming from the south-east."

and Cape Howe, the extreme south-western termination of the great Murri (or Murring) Nation.

Between the south-eastern termination of the Kulin Nation, at about the Tarwin River in South-west Gippsland and the south-western termination of the Murri Nation at about Malla-goota Inlet in Eastern Gippsland, there was the Kurnai tribe. This remarkable tribe can be shown to be neither Kulin nor Murring, and an inquiry now arises of which of the advancing lines to which those people respectively belong it has been an offshoot. In seeking for a reply to this question, I have met with some curious facts which are worthy of notice.

The Kurnai Ancestors.

The Kurnai acknowledge no kindred with any of the tribes adjoining them. In olden times they were hostile to all, and applied to them a name as distinguished from themselves of "Wild men." It is therefore necessary, in attempting to trace out from which migratory stream of those I have mentioned the Kurnai ancestors were derived, to turn to the customs and the beliefs of the tribes for light.

I am not in a position to compare the languages of these tribes in a satisfactory manner, for to do this it would require one to have a competent knowledge of the languages of at least three of the tribes adjoining the Kurnai country. Besides this, it would also be necessary to have a good acquaintance with the three Kurnai dialects, the Mük-thang, the Thang-quai, and the Nülit, of which the former only is familiar to me. It is therefore necessary to have recourse to the aid to be derived from the comparison of vocabularies, and of such slight knowledge of the neighbouring Murring languages as I have obtained.

The result has been to prove that the Kurnai dialects are most nearly allied to those of the Kulin, and differ as much on the other hand from those of the Murring, both of the coast and of the mountains. Yet I must also note that the Thang-quai, as spoken by the most easterly of the Kurnai, namely, the Krauatun, has words which are no doubt due to the intimate relations of this clan with its Murring neighbours.

The customs of the various tribes do not in comparison afford much light; but what little there is shows a greater resemblance in details between those of the Kurnai and Kulin than between those of the Kurnai and Murring.

Two illustrations will suffice as examples of this part of the evidence. As I have elsewhere shown, the Kurnai Jeraeil has no resemblance to the Murring Kuringal, excepting in the first

principles which underlie both. The Jibauk of the Kulin were probably the survival of more complete ceremonies, which, if resembling either of the others, did so more as to the Jeraeil than as to the Kuringal.

The practice of sending messengers was common to all the tribes, but the practice of the Kurnai and Kulin agreed most, even to the name applied to the messenger,¹ and to the method of enumerating the number of camping stages to which the message might refer.

This resemblance is still further and more strongly supported by a comparison of the local organisation of the tribes, as I have now evidence to show. The imperfect remains of the class-systems of the Wolgal, Ngarego, and Coast Murring point to a derivation of their social organisation from systems of the Kamilaroi type. Indeed, that of the Wolgal preserves two of the four classes in precisely the form of name which still obtains in the neighbouring Wiraijuri tribe. Nothing in these systems throws any light upon the mere traces of the class organisation which the Kurnai have retained.

On turning to the Kulin tribes, however, the case is very different. The very names of the two primary classes suggest an explanation of the peculiar designation which is applied to many of the Kurnai men when reaching mature age. In explaining this, and in illustrating the comparisons possible, I must now note a few facts as to the Kulin, and for this I use the Woiworung tribe, which is indeed the only one as to which anything like complete data are now obtainable.

In all the tribes of the Kulin Nation which were settled in the country extending from the Upper Goulburn River southwards to the sea-coast in the Western Port District, there obtained a class system having only two main divisions with totems. Together with agnatic descent there was this peculiarity, that each local division consisted only of men of one or other of the two class-names, the wives of these men being all, of course, of the other class, and the children all of the class to which their fathers belonged. Thus it was that each local division was perpetuated by men of the same class-name. The people who spoke the Woiworung language afford an illustration. They were divided into five clans, one of which, the Ūrūnjéri-Balūk,² claimed the country lying between the Yarra and Saltwater Rivers, and it is to this clan that my information particularly refers. All the people of Urunjéri descent were of the Waa (Crow) class. Of the other four clans, two were likewise Waa

¹ *Paiara* with the Kurnai, and *Baiaur* with the Kulin.

² *Urun* = white gum-tree; *baluk* = a number of people.

and two were Bunjil (Eaglehawk). The class system of this tribe, as I have said, has these two primary class divisions Eaglehawk and Crow. In addition to these, there is one totem, Hawk, which belongs to Bunjil, while Waa has not any totems. The folklore of this tribe, however, has a more complete list of the totems of Bunjil. A legend relates that long ago, "in the beginning," the great Supreme Being, Bunjil, lived on the earth with his sons, Thara (Hawk), Yüko (Musk Lorikeet), Jürt-jürt (Nankeen Kestrel), Dantün (Blue Mountain Lorikeet), Turnü (Brushtailed Phascogale). Bunjil being at feud with Balaiang (the Bat), sent his sons to burn all the country towards the Murray River, and in this conflagration the Bat was scorched so that he has remained bare and grinning ever since. This enterprise having been successfully accomplished, Bunjil and his "sons" ascended to the sky, where they now are as stars.¹ We may, I think, surmise from this legend that the "sons of Bunjil" represent the totems formerly existing in that class. I have not learned any corresponding legend as to the "sons" of Waa.

Now it is to be noted that with the Kurnai the term Bunjil has no significance as "Eaglehawk," but is a name which is applied to many old men, in conjunction with some term expressing some characteristic or quality. For instance, an old man who had a deep growling voice became known as Bunjil Gworün (thunder). The crow is regarded by the Kurnai as being one of the "Muk-Kurnai," or ancestors, and they reverence it, and think that it watches over them and can answer their questions by its cawing (*Nga*, Yes; or *Ngat-bun*, No). As the Kurnai have no true totems, it is not possible to make a satisfactory comparison, but it is not perhaps without significance that one of the Woiworung "sons of Bunjil" (the Brushtailed Phascogale) is called by the Kurnai in the Nilit language, Bunjil wadtun, that is to say, "Bunjil opossum." The Hawk, which is one of Bunjil's sons, and also the sole remaining totem of that class, also appears in the Kurnai folklore as a Muk-Kurnai, who prevented the supernatural female "duality," Bülüm-Baukan, from stealing the fire of the Kurnai.²

I have elsewhere noted the peculiar bird totems of the Kurnai

¹ Among the Wotjo-balluk of the Wimmera River, in North-western Victoria, Bunjil is a sub-totem of the Gárchüka totem of the Krókitch class. It is related that long ago he was a very powerful man who ascended to the sky with his two wives, who were sisters, Gūnawara (swan), of the class Gámütch.

² I use this word "duality" as the only one I can think of which expresses the peculiar conception of the supernatural being "Bulum-baukan." Two Baukans are always spoken of, but at the same time as if inseparable, and having one son, "Bulum-tut," common to both. Baukan is in some respects analogous to the Ngálalbal of the Murring Kuringal ceremonies, to the two wives of Bunjil, of Baiame, &c.

which divide the community into a group of males and a group of females. But these totems are not of a kind peculiar to this tribe, for I find them throughout South-eastern Australia, and they probably have a wider range. They are not true totems in the sense that these represent subdivisions of the primary classes, yet they are true totems in so far that they are regarded as being the "brothers" or "sisters" of the human beings who bear their names. I cannot now enter into a further consideration of the very interesting subject of Australian totems, which requires a separate memoir for its treatment, but must confine myself to such facts as have a bearing upon the questions with which I am at present concerned.

The bird totems of the Kurnai are the Emu wren and the Superb Warbler, which are respectively the "man's brother" and "woman's sister." With the Coast Murring the Emu wren is also the "man's brother," but the "woman's sister" is the Tree creeper (*Climacteris scandens*), and this is the only totemic connection which I can trace out between these tribes. When, however, we turn to the Kulin we find both the Kurnai totems in just the same position. In addition, there are also a second male and female totem, namely, the Bat and the small Nightjar, and these two are found to extend to the extreme north-western confines of Victoria as the "man's brother" and the "woman's sister."¹

In the Woiworung language the Emu wren is called "Bunjil Bóroin," and possibly this may have a connection with the legend of the Kurnai "Adam"—for it is related that the "first Kurnai old man," Bunjil Borun, walked across the plains from the north to the sea, carrying his wife in a canoe on his head. I feel a difficulty in connecting the two names, as in the Kurnai dialects Borun means "Pelican," and not "Emu wren."

There is another legend, however, which is found in what I may call its complementary parts in the Woiworung and Kurnai tribes, and to me it seems to speak of an early migration of the Kurnai ancestors in unmistakable terms.

The Woiworung say that long ago a gigantic being like a blackfellow lived on the banks of the Yarra River. He was named Loän, and is now pointed out as one of the stars. Observing that pieces of swan's-down were carried to the Yarra by the south-east wind he journeyed in that direction and discovered the Inlets at Western Port Bay, where he settled down for a time. By-and-by he again wandered onwards, following the swans in their migrations, and thus discovered Corner Inlet in

¹ Mr. A. L. P. Cameron has shown that these totems extend still further into New South Wales.

Gippsland, where he permanently took up his abode, living in the mountainous recesses of Wilson's Promontory.

The Kurnai on their part say that a great being called Loän lives in a cave at Wilson's Promontory, where he has at times been seen wandering armed with an enormous spear.¹

It is to this Loän that is attributed the institution of the remarkable formalities which attended the admission of alien but friendly blackfellows into his country. By the Kulin of Western Port and Melbourne, and by the Kurnai, the country for some distance on each side of Wilson's Promontory was known as "the Bad ground."² It was believed that any blackfellow other than a native of it who should enter it, without being under the charge of a Brataua man and the protection of the proper formalities, would certainly become ill, and most likely die.

From what I have heard of this belief, and of the formalities connected with it, I suspect that at the bottom lies the liability to some kind of fever by blacks from warmer and dryer parts of the country if they come and camp in the damp and swampy forests of the "Bad ground."³

The legend of Loän and the belief in the "Bad ground" connect the Kulin and Kurnai tribes and strengthen the views suggested by the class-names. It seems to me more than probable that the Kurnai are of the same stock as the Woiworung Kulin, and that the legends which I have noted refer to one, if not more than one, immigration into Gippsland; one migration by way of Western Port, and another, if the story of the Kurnai "first old man" has any reference to the facts of the past, by way of the Macallister River valley, which even since the whites have settled in the country has been the war-path of the Kurnai when making a raid upon the Kulin of the Mansfield district.⁴

It is now well to consider what were the relations of the Kurnai with their immediate neighbours to the east, that is to

¹ The name Loän seems properly to belong to the Brataua Kurnai clan, which, living in his country, were supposed to be protected by him. The other Kurnai knew of him from them, but also spoke of him by the name of "Külingrük." Both these names are applied to white men, and white women have received the designation of the wife of Loän, namely, Loän-tüka. Old men tell me that these names have been used for the supernatural being in the Brataua country "from the beginning," that is, the origin of these names is unknown to them.

² In the Nulit dialect = Wia-wek; in the Woiworung = Márine-bek.

³ Mr. James McAlpine, who has lived in South Gippsland almost since its settlement, tells me that when he first came there he became acquainted with a very old blackfellow who gave him much information, and who said that "his fathers came from the West, and the country to the East was at that time empty of people."

⁴ These Kulin were also divided into Bunjil and Waa.

say, with the Coast Murring. The language spoken by the Krauatun, who were the most easterly clan, was a dialect of the Kurnai language, and was quite unintelligible to the adjoining Murring.¹ Yet there are a few peculiarities which show that the language of the latter has influenced it.

The Krauatun Kurnai occupied the country along the coast from near Lake Tyers eastward to Mallagoota Inlet. The Tatung Kurnai extended along the strip of country westwards from the entrance to the Gippsland Lakes, and between them and the sea. The full names of these two clans are Krauatungalung and Tatungalung. The termination "galung" is a possessive suffix which slightly differs from the form which I find in the Mukthang, where it is "lung," as in the clan name Brabralung, which may be translated as "manly," or "belonging to that which is manly;" another example is in the possessive pronoun *ngitalung*, = "mine," which is properly and in full, when not colloquially abbreviated, *ngaiw-ta-lung*, that is to say, "I, belonging to," or "of." In the termination "galung" I find a common possessive suffix of the Murring language, "gal," added to that used in the Mukthang. As examples of the use of "gal" I take the local names of the Coast Murring tribes as "Bemerin-gal" and "Katun-gal," where Bemerin = Mountains, and Katun = Sea. The term Katungal, as meaning those "of" or "belonging to" the sea coast, is applied by the Murring to all those thus located on each side of them, in one direction into Gippsland, and in the other beyond Sydney. I cannot but think that the name Tatungalung of the Kurnai is in fact this word with the "K" altered to "T," and the Kurnai possessive suffix added.

The word "Tat" is by them used as meaning "south." Hence a southerly rain is "Tätung-willung," but there is a second word in use also meaning "south," namely "káter." This, I think, is merely a variation of the same root.

The Krauatun consider themselves to be, and are recognised by the other clans as, Kurnai. But they do not participate in the Jeraeil of their own tribe, nor in the Kuringal of the Murring, except in rare cases, such as where a man's mother belonged to that tribe, and he might be admitted to what may be called an "honorary membership." The Tatung had con-

¹ There were three dialects in Gippsland—the Nülit, spoken by the Braika and Brataua; the Mük-thang, by the Brabra; and the Thang-quai, by the Krauatun and Tatung. The difference between these three dialects and the Murring language can be shown by the statement which a Krauatun man might make. He would probably say, "I can understand the Mük-thang, and speak it a little; I can understand the Nülit, though I cannot speak it; but I cannot understand the Murring language at all."

nubium only with the other clans of the Kurnai. The Krauatun had this, but also in addition with the Murring.

This connubium, existing between the Krauatun, Kurnai, and the Coast Murring, leads to an interesting conclusion. It was not the alliance of two local divisions of the same tribe, but of divisions of two totally distinct tribes. It shows that even when two groups such as these met in the past as complete strangers to each other, permanent hostility was not necessarily the consequence. It even suggests that unless impassable natural barriers intervened between tribes, their outlying members would be sure to become more or less connected by the bonds of acquaintance and of kindred formed by inter-marriage. This would, it seems to me, be the case even when two tribes were, as entities, in a chronic state of feud with each other.

Who can say, or even conjecture, how long the two migratory streams had been separated when in olden times the ancestors of the Kurnai and of the Murring met first at Mallagoota Inlet? It is not possible to say, but the period must have been sufficiently long to admit of their customs having diverged, the initiation ceremonies of one branch having been lost, and of their languages having become mutually unintelligible. Yet, in spite of all this, we find the two migrations not only on as friendly a footing with each other as were the Kurnai clans to each other, but also in some respects having undergone a partial fusion.

On the grounds I have now stated, it seems to me almost if not quite clear that the Kurnai ancestors entered into Gippsland from the westward, or perhaps also from the north-westward, in one or in more than one migration.

The Bidweli Tribe.

The discussion of the preceding questions brings into view a subject of much interest, namely, the Bidweli tribe.¹

Between the country of the Krauatun Kurnai at the Snowy River and along the coast, and that of the Murring of the Maneroo tableland to the north and of the sea coast Murring to the east, there lies a large stretch of country which was occupied by the now almost extinct Bidweli tribe. This tract is one of the most inhospitable that I have seen in Australia. I have traversed its scrubs, mountains, and swamps four several times, and I observed little in it of living creatures excepting a few wallaby, snakes, leeches, mosquitoes, and flies. Yet the Bidweli inhabited the few small open tracts in it and called themselves "men" (*maap*).

¹ Sometimes spoken of as the Bidwel, or Bidwelk. I cannot give any translation of this word.

After lengthened inquiries from the few survivors, and from those of their neighbours who knew them, I have ascertained as follows:—

Their language is compounded from the surrounding dialects. The class-names and totems are similarly derived from their neighbours, for I have found them to be Yeerung (Krauatun Kurnai), Yūkembrūk = Crow, and Tchūteba = Rabbit Rat (Ngarego), and Yalonga = Rock Wallaby (Coast Murring). I even found one family bearing the name of Bunjil. Their relationship terms are also derived from the same neighbouring tribes, some being Kurnai and some Murring, as might have been forecast from their compound language. Further, the Bidweli had no initiation ceremonies, and the last survivors are not, as I have observed, even admitted to those of the neighbouring tribes with whom there was connubium. This *prima facie* case of a mixed descent is strengthened by the case of a Bidweli man claiming as his country the upper valley of the Brodribb River.¹ He stated to me that his "father's father" was a Kurnai of Buchan² who left his country and settled in the small open tract known as the Goungra Valley, west of Mount Ellery. His son obtained a wife from the Thedora of Omeo, and the son of this marriage, my informant, married a Ngarego woman. This pedigree accounts for both Yeerung and Yukembruk.

Such a case as this of my informant's grandfather is just on all fours with one mentioned by me elsewhere³ of a man who, having broken the moral law of his tribe, escaped out of reach of its vengeance, and only reappeared when the whites had settled the country, and he could thus find protection against tribal vengeance.

I can feel no doubt that the Bidweli country has been an Australian "Cave of Adullam," and that its tribe has been built up by the refugees from tribal justice or individual vengeance, who have organised themselves so far as they could do so on the old accustomed lines. It is a good example of what Dr. Hearn has called the formation of a non-genealogical tribe.

The general conclusions which may be drawn from preceding statements are these:—

¹ So far as I can learn, it was only about fifteen years back that this man "came in," that is to say, abandoned his wild life and went to live among the stations of the Maneroo tableland. He was the last wild blackfellow in Gippsland.

² This is not, as might be supposed, a Scotch name given to the locality by some of the early settlers, who were mostly from North Britain, but a native word, which should be properly written Būkan, meaning the large net-bag in which the blackfellows carried their things. The proper name of the place is Būkan-mūnji, meaning "Bag-there," or the "Place of the Bag."

³ "Kamilaroi and Kurnai," p. 348, footnote.

- (1) The early aborigines of Australia in spreading southwards over the continent followed the well-watered tracts along the coasts and the rivers.
- (2) The spreading population gradually became separated into groups of tribes having certain common features, one of which, namely, the use of a word meaning "man," conveniently affords a means of marking the extent of such of these groups as may be termed "nations."
- (3) Where migratory streams again met, the tribes which formed their extreme terminations coalesced and established connubium, in spite of difference in custom and language.
- (4) The Kurnai tribe is an offshoot from such a migratory stream which spread round the northern and western flanks of the Australian Alps, and penetrated to Gippsland in two or more immigrations.
- (5) Tribes have been formed not only by the regular process of growth of groups separated from genealogical tribes, but also by the organisation on the accustomed lines of aggregates of "broken men."

DISCUSSION.

Dr. E. B. TYLOR, in calling attention to the chief points of Mr. Howitt's argument on the ancestry and former home of the Kurnai tribe, remarked that the anthropological interest attaching to this tribe, which induced Mr. Howitt to study in such detail the traces of its past movements, depends on its illustrating a remarkable course of social change. While the neighbouring tribes follow the ordinary Australian matriarchal rule of female descent, and are divided into intermarrying classes, the Kurnai have as to males the rule of male descent, and marry into different divisions within the tribe. Their peculiar marriage-custom, however, gives reason to suppose that exogamous marriage-classes, comparable with those of the Kamilaroi, once existed among them. Couples elope together, and though this is the only mode of marriage the parties are pursued and punished as offenders, till eventually the crime is condoned and the married pairs settle into the tribe. This is fairly explained by considering the Kurnai to represent one intermarrying body whose corresponding body has been destroyed or separated, so that they are now compelled to violate the law of exogamy, though they do so under ceremonial protest. At the same time they have made some part of the transition from the matriarchal to the patriarchal system. These are changes of such importance in social development, that Mr. Howitt rightly judges it worth while to ascertain

the historical circumstances under which, in this particular case, they have come to pass. Referring to Mr. Howitt's paper on the initiation ceremonies of the Kurnai ("Journ. Anthropol. Inst.," Vol. XIV, p. 301), Dr. Tylor produced specimens of the sacred *tundun*, or "bull-roarer," sent over to him by Mr. Howitt, and whirled them to show the difference between the deep tone of the larger or "man tundun" (Grandfather) and the weaker shrill tone of the small "woman tundun." Illustrative of the horror felt by the natives lest these sacred instruments should be seen by women or children, is the myth current in this region of a deluge caused by some children finding a tundun which had been hidden in a bush, and bringing it home to their mothers, whereupon the sea burst out over the land. After displaying the remarkable mechanical action of the bull-roarer, Dr. Tylor noticed its wide prevalence in religious mysteries, as where in front of the Moqui procession of dancers, each with a live rattlesnake or two in his mouth, the priest walks whirling a bull-roarer, much as Mr. Andrew Lang has shown the ancient Greeks in the mysteries of Dionysos Zagreus to have whirled their *ρῶμβος*, which the description shows plainly to have been a bull-roarer. This word itself is good local English, belonging to the flat slip of wood fastened at the end to a string which represents in European-boys' play the instrument which has had so high a mystic import in the barbaric and ancient world.

DECEMBER 8TH, 1885.

FRANCIS GALTON, Esq., F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and signed.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From H.H. PRINCE ROLAND BONAPARTE.—A Collection of Photographs of New Caledonians and Australian Natives (Queensland).

From H. W. SETON KARR, Esq.—Photographs of North American Indians.

From the SMITHSONIAN INSTITUTION.—Annual Report for 1883.

From the DEUTSCHE GESELLSCHAFT FÜR ANTHROPOLOGIE.—Correspondenz-Blatt. October, 1885.

- From the SOCIEDADE DE GEOGRAPHIA DE LISBOA.—Subsidios para a Historia de Jornalismo nas Provincias ultramarinas Portuguezas. Pelo Socio Brito Aranha.
- From the AUTHOR.—Ueber Bekleidung, Schmuck und Tätowirung der Papuas der Südostküste von Neu-Guinea, von Dr. Otto Finsch.
- An Address before the Section of Anthropology of the American Association for the Advancement of Science; at Ann Arbor, August, 1885. By William H. Dall.
- From the ACADEMY.—Atti della Reale Accademia dei Lincei. Serie quarta. Vol. I, Fas. 24.
- From the SOCIETY.—Journal of the Society of Arts. Nos. 1723, 1724.
- Proceedings of the Royal Geographical Society. December, 1885.
- Journal of the China Branch of the Royal Asiatic Society. 1885, No. 3.
- Boletim da Sociedade de Geographia de Lisboa. 5ª Serie, No. 5.
- Mittheilungen der Anthropologischen Gesellschaft in Wien. XV Band., Heft 1.
- From the EDITOR.—"Nature." Nos. 839, 840.
- "Science." No. 146.
- L'Homme. No. 20.
- Bullettino di Paletnologia Italiana. Serie II, Tom. I, N. 9 e 10.
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Mr. H. H. JOHNSTON exhibited and described a collection of photographs of African Natives, upon which Professor Flower made some remarks.

Mr. H. W. SETON KARR exhibited and described some photographs of North American Indians.

Mr. JOSEPH HATTON exhibited a number of ethnological objects from North Borneo, collected by his son, the late Mr. F. Hatton.

Mr. W. M. CROCKER exhibited and described some objects from Borneo, and made some observations on Mr. Hatton's exhibit.

Miss MAN exhibited a collection of photographs of Nicobarese taken by her brother, Mr. E. H. Man.

Professor R. MELDOLA exhibited and described some photographs of Nicobarese.

EXHIBITION of PHOTOGRAPHS of NORTH AMERICAN INDIANS.
By H. W. SETON KARR, Esq.

THESE photographs are mainly of an Indian tribe called by the French Canadians *Montagnais*, though why is not clear, the only mountains they inhabit or visit for purposes of trapping furs being part of the Laurentides, which at that particular point are by no means lofty. This tribe inhabits the country north of Quebec, in the vicinity of Lake St. John and Lake Mistassini, and the Mistassini, Ashoupmouchouan and Peribonca Rivers.

Unlike the American tribe of Indians in New Mexico, the Montagnais are quite ready, and even eager, to submit to being photographed. In Mexico and Arizona they are sometimes bribed to stand, but often hide their faces just as the cap is removed from the lens of the camera.

These Montagnais, according to the Hudson Bay officers at Blue Point, are rapidly dying out, from unaccustomed food and change in their habits, owing to the lack of game, and the necessity of their taking up agricultural or at least industrial pursuits in order to make a living with any certainty.

I heard them coughing, and was informed that phthisis and pulmonary affections chiefly carried them off.

Although this tribe is dying out (which is a relic of the famous Iroquois tribe), other Indians are by no means doing so, as the statistics show.

Thus the population of Indians in Quebec Province

in 1871 was	8,657
" 1883 "	11,930
" 1884 "	12,023

The Indian Industrial Exhibition near Quebec in 1884 was wonderfully successful.

Indians in Canada now have quasi-municipal privileges and a separate Department of State for the management of their affairs.

EXHIBITION of ETHNOLOGICAL OBJECTS from BORNEO.
By W. M. CROCKER, Esq.

THE inhabitants of Borneo consist of Mohammedan Malays on the sea coast, and numerous aboriginal tribes in the interior: these are divided into some hundreds of families or small tribes, but so great a resemblance do they bear to the Malays that they are undoubtedly equally the offspring of the great Polynesian race.

I shall not attempt to enter into the theory of the origin of

these people, but I may remark that some writers say they came originally from the West (Java and Sumatra) and the remains of Hinduism, such as stone-shaped balls and other stone utensils, found amongst them, would seem to support this theory. At the mouth of the Sarawak River, for instance, many articles of gold and pottery of unmistakable Hindu workmanship have continually been found, indicating that this was once the site of an important Hindu settlement. Mr. Carl Bock, who travelled from Coti, on the east coast of Borneo, to Banjer on the south, found numerous Hindu remains amongst the natives of the interior. Mr. Wallace is of opinion that Borneo once formed a part of the mainland of Asia, and that it was originally peopled from the north. Curiously enough I found the belief in good and evil spirits existing amongst the Milanows of the north-west coast of Borneo exactly similar to that found amongst the Cochin Chinese, and there are not wanting other evidences in support of Mr. Wallace's theory. But we have more to do with the curious and striking customs found amongst the people. When residing on the north-west coast amongst the Melanows I made a vocabulary of some fourteen different tribes, and although in many instances before they came under the influence of a settled government, the people of one river could not converse with those of another, yet the similarity of language is so great that it proves unmistakably that all these tribes are branches of one great family; and yet their manners and customs are in some instances so different that one is almost led to doubt whether this inference is a correct one. For instance, in one tribe only I found the parents flattened the heads of their children; I believe this practice is confined entirely to the Milanows.

It is considered a sign of beauty to have a flat forehead, and although chiefly practised on female children, boys are occasionally treated in the same manner. When a child is a few days old an instrument (shown at the meeting) is applied to the forehead, a small cushion being placed underneath, and under that again some green banana leaves. By an ingenious arrangement of strings equal pressure is brought to bear on the forehead, and the final tightening is done in front by a contrivance which has the same effect as a tourniquet. I have often watched the tender solicitude of the mother who has eased and tightened the instrument twenty times in an hour, as the child showed signs of suffering. The chief object is to get the child to sleep with the proper amount of pressure on the instrument. Before the child is twelve months old the desired effect is generally produced, and is not altogether displeasing, as it is not done to the extent of disfigurement, which I believe to be the case amongst some of the American Indians.

Then, again, a curious and isolated method of obtaining a light is found amongst the Saribus Dyaks only. (Instrument exhibited.) Here we have a small brass tube lined with lead—no other metal, the natives say, would produce the same result. A small wooden plunger is made to fit the tube, the end of which is hollowed out in the shape of a small cup, in which is placed the tinder (I forget the nature of the tinder, but think it is procured from the inside bark of a tree). The end of the plunger is then slightly inserted in the tube, and by a sharp blow of the hand driven smartly to the bottom of the tube and then quickly extracted, when the tinder is found to be ignited. This we all know is caused by the forcible exhaustion of the air, but how such an idea should have occurred to the savage mind is beyond my comprehension. The natives rarely fail in obtaining a light, and many of them still stick to their tube and tinder in spite of Bryant & May's matches, which are now found all over the country.

Another remarkable specimen from Borneo is the Parang elang (sword) manufactured by the Kyans of the interior.

The blade is concave on one side, and convex on the other, and is manufactured from native iron ore. It is so finely tempered that it will cut through a nail without turning the edge.

The blade is inlaid with brass, the handle being of carved deer horn decorated with human hair. Altogether the weapon is very superior, and is very highly prized by all the tribes in Borneo.

I then alluded to the interesting collection of specimens made by that promising young explorer, Frank Hatton, in North Borneo, the story of whose life is so pathetically told by his father in a book styled "North Borneo," recently published, in which will be found an interesting description of the arms, &c.

In conclusion, I said I believed Borneo offered a richer field than perhaps any other portion of the globe to all those interested in the study of primitive races, peopled as it is by hundreds of tribes showing every graduation of imperfect civilisation, from men living absolutely in a state of nature—who neither cultivate the ground nor live in houses, but who roam the woods in search of plants and fruits, and in quest of game, which they kill with their blowpipes and poisoned arrows—up to the polished Malay gentleman who affects European dress and gives champagne dinner parties to his English friends.

EXHIBITION of PHOTOGRAPHS of NICOBARESE.

By Professor R. MELDOLA, F.C.S.

PROFESSOR MELDOLA remarked that before offering any account of the expedition which led to his visiting the Nicobar Islands in 1875, he should like to call attention to the extreme interest of the fire-producing contrivance from Borneo exhibited by Mr. Crocker. It had long been known that sudden compression of air gave rise to the development of heat, and a common form of lecture illustration was to take a stout glass tube closed at one end and provided with a tightly fitting plunger acting as a syringe. A fragment of tinder or a piece of wool moistened with carbon disulphide is placed at the bottom of the tube and the piston forcibly and suddenly pushed down, when the tinder is ignited or the carbon disulphide vapour caused to flash into combustion. It seemed hardly credible that the apparatus exhibited could have been invented by the Borneans, as the outcome of any elaborate chain of reasoning, and at the same time it was not apparent that any observation of natural phenomena could have originated the contrivance. It therefore appeared to him highly desirable, as an anthropological question of great interest, to endeavour to trace this custom to its origin, and he hoped that those having any opportunities for so doing would not fail to take advantage of them.

With reference to the photographs of Nicobar Islanders, Professor Meldola stated that he brought them in the hope of their being of interest in connection with the paper by Mr. Man announced for that evening, although he was not aware at the time of receiving the notice of the meeting that Mr. Man had himself sent over the fine collection of photographs which they now had the opportunity of inspecting. He did not feel it advisable to make any remarks respecting the anthropology of this interesting people, since his own visit to the islands had been extremely short (only about fourteen days), and he was occupied during most of that time in fitting up and taking down astronomical instruments. He was of opinion that a great deal of bad anthropology had resulted from travellers paying hasty visits to certain places and then writing papers about the natives. It was only observers qualified, like Mr. Man, by actually residing for some time among the people themselves, who were in a position to furnish substantial contributions to anthropological science, and all who had followed this author's previous work on the Andaman Islanders would agree in the opinion that the present subject could not have fallen into more competent hands. The expedition which had led to Professor Meldola's

visiting the Nicobar Islands was equipped by the Royal Society in 1875 for the purpose of observing the total solar eclipse of that year, the station selected having been the Island of Camorta, because this place happened to be near the line of greatest totality, and at the same time the fact of its being a penal settlement enabled the observers to have the benefit of convict labour.

The Director read the following paper:—

A BRIEF ACCOUNT of the NICOBAR ISLANDERS,
with special reference to the Inland Tribe of GREAT NICOBAR.

By E. H. MAN, F.R.G.S., &c.

[WITH PLATES XVII TO XIX.]

THE Nicobar group, situated in the Bay of Bengal between the 6th and 10th parallels of N. lat., comprises twelve inhabited and a few uninhabited islands and islets whose entire area is estimated to contain about 738 square miles, nearly one-half of which is included in Great Nicobar.¹

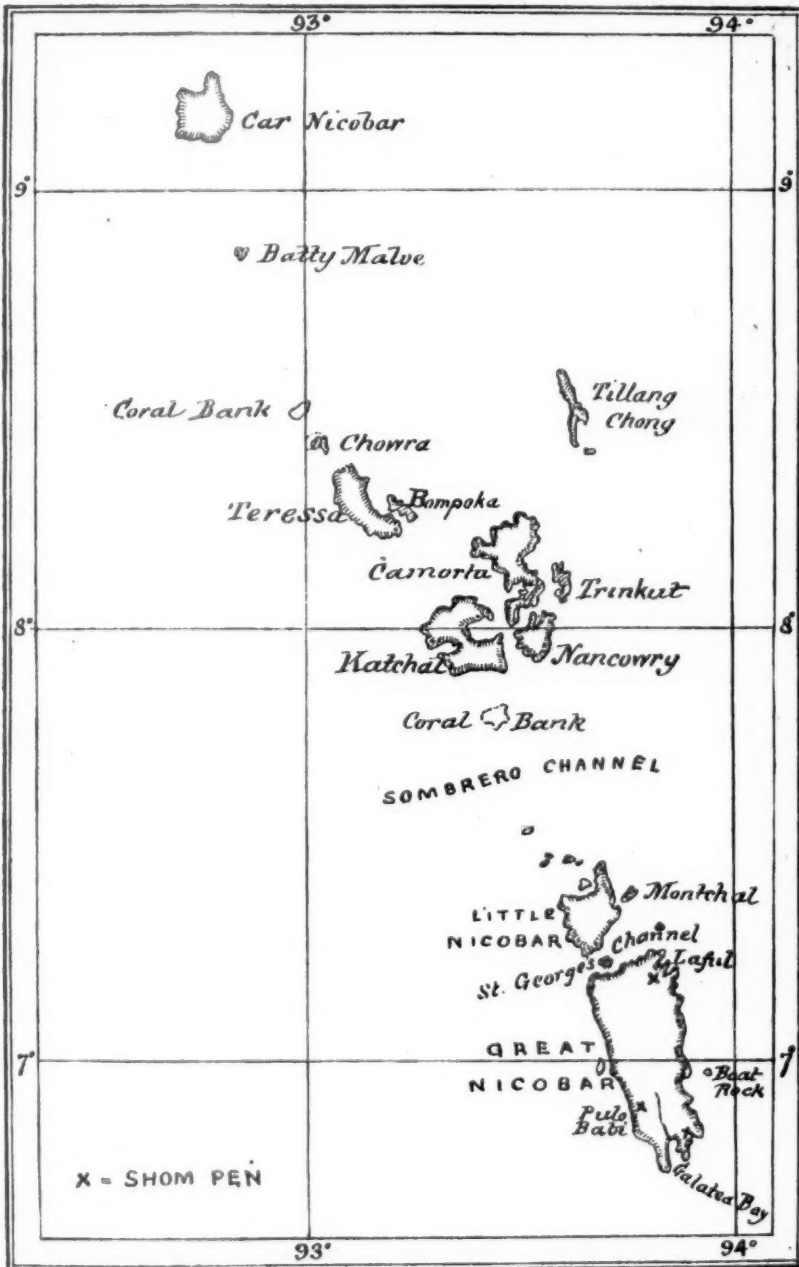
As in the course of this paper it will be necessary to make mention of the government settlement in these islands, a brief account must first be given of the causes which led to their occupation by the British-Indian Government.

It had been long more than suspected that the natives in the vicinity of Nancowry Harbour² had at intervals from 1839 (if not even prior to that date) committed a series of unprovoked murders and outrages on the crews of vessels visiting these islands for purposes of trade, many of their victims being under the protection of the British flag. It was not, however, until 1867, when a flagrant case was brought prominently to the notice of the Straits Government, that the authorities decided to deal summarily with the miscreants.

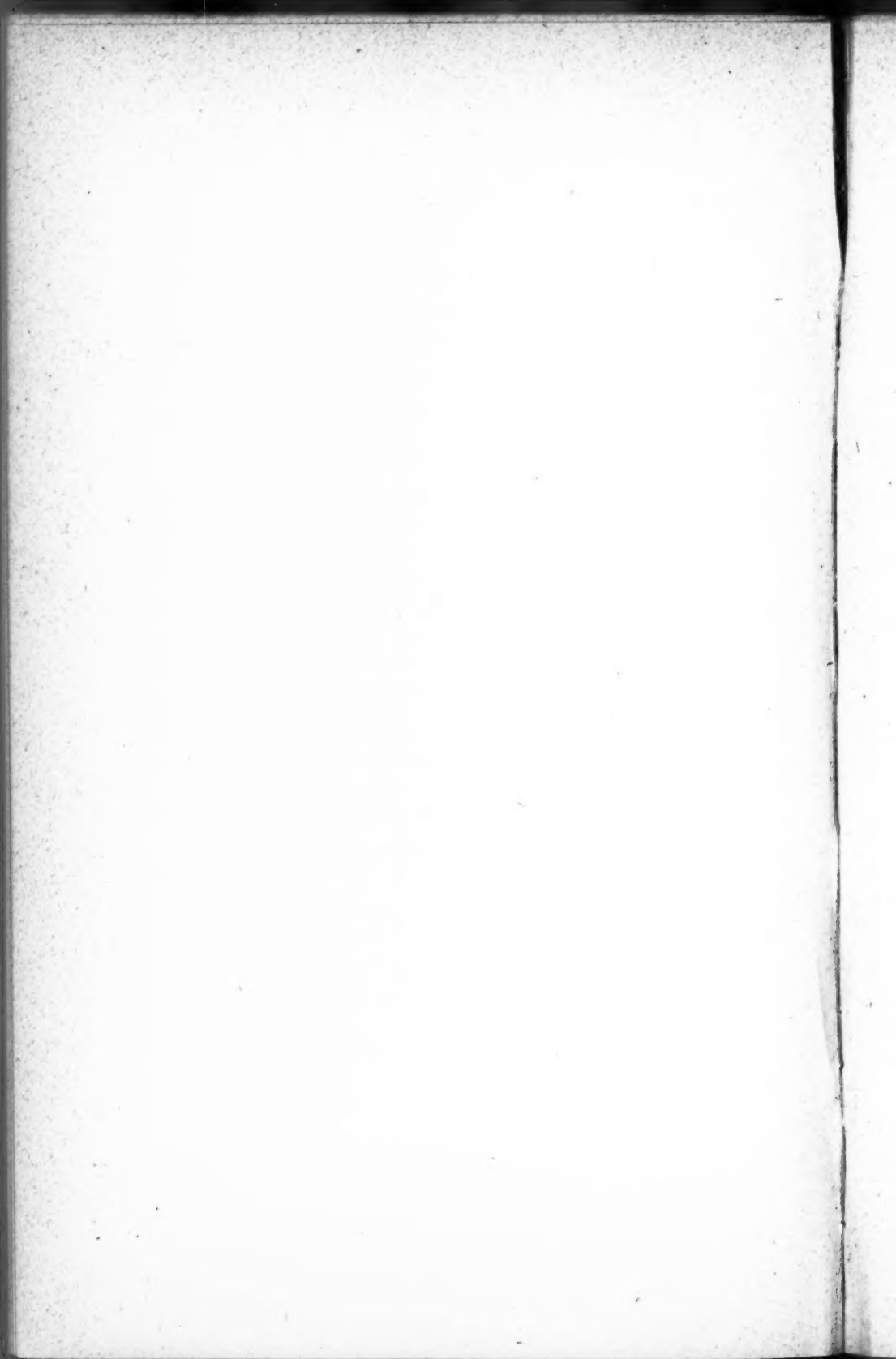
An expedition was accordingly despatched consisting of two gunboats ("Wasp" and "Satellite") with instructions to visit the suspected villages and, after inquiry into the circumstances, to take fitting steps for the prevention of a recurrence of such atrocities. As a result of the investigation, two or three only of the accused offenders were captured and conveyed to Penang, where conviction was obtained in the case of one alone named "Francis," who was sentenced to imprisonment. In order to

¹ The area of Great Nicobar is 362 square statute miles.

² Situated near the centre of the Nicobar group.



SKETCH MAP OF THE NICOBAR ISLANDS.



afford protection in future to vessels visiting the islands, it was deemed advisable to establish a permanent settlement in a commanding position in Nancowry Harbour, where alone effectual surveillance could be maintained. Having first obtained the sanction of the Danish Government, which till then had been in nominal possession of the islands, the sovereignty of the group was, in April, 1869, transferred to the English Crown by the British-Indian Government, by whom the charge was affiliated to the Chief Commissionership of the Andaman Islands, and it has consequently been from thence that the infant colony¹ has ever since been furnished with its entire staff as well as requirements in respect to materials and stores.

Like the Andaman Archipelago we find the Nicobar Islands peopled by coast and inland tribes, with this difference—that while the inhabitants of the former are negritos of the same and unmixed origin, those of the latter consist of two races, one of which, viz., the natives of the interior, appear as a tribe of pure descent (with certain Mongolian affinities) isolated from a remote period from contact with other people, whereas their fellow-countrymen on the coast exhibit all the characteristics of a mongrel Malay race.

For many years past a belief has been entertained by ethnologists that the inland tribe of the Nicobar Islands (known to the coast people as "*Shom Peñ*")² would be found to supply the seemingly missing and requisite link connecting the negritos of the Andaman Islands with the Semangs of the Malayan Peninsula; but this theory is proved untenable since increased facilities of intercommunication have established the fact that these jungle-dwellers are in no way allied to negritos, being fairer than the Malays and—with one exception,³ so far as our present observations extend—straight-haired. Moreover, the wide and frequently boisterous channel which separates the Andaman and Nicobar groups has effectually prevented intercourse between their respective inhabitants, and sufficiently accounts for the striking dissimilarities which exist, not merely in their physical characteristics and language, but even in their customs and mode of living.

From a rough census taken in 1883-84, it was found that the inhabitants of the Nicobar Islands number about 6,000, upwards

¹ This settlement numbers between 400 and 500 souls, viz.: convicts, 275; Madras sepoy, 50; police, 27; and free residents.

² *Shom* denotes "native," "countryman," "people"; and *Peñ* the particular tribe designated. (This word *Peñ* is pronounced as the French word *pain*.)

³ The only *Shom Peñ* we have yet seen with curly hair is a man named *Ko'ail*, belonging to the *Láfál* community; the coast people, however, assure us that his is by no means an exceptional case, and that other sections of the tribe are known to them possessing the same peculiarity.

of one-half of which are found on Car Nicobar, and 700 on the small island of Chowra; of the *Shom Pen* it is at present impossible to form any estimate, but judging from what we have seen of their few and scattered villages, it seems probable that they do not muster more than a few hundreds, or at the outside from 1,000 to 1,500.

The ratio of population to the area of the various islands may be said to increase from south to north, the chief cause of which may be attributed to the fact that the extent of land naturally adapted for cocoanut cultivation is comparatively limited in the southern islands, which are mountainous and contain for the most part fertile clayey soil covered with dense jungle, while the leading characteristics of the northern islands is low-lying, fertile, calcareous soil, on which alone the cocoanut flourishes most luxuriantly. The extensive plantations of cocoanut trees, especially on Car Nicobar, have attracted a considerable trade, and an average of 45 native vessels, principally from the Straits, Burmah, Ceylon, Coromandel Coast, and Kutch, annually visit these islands for cocoanuts or "kopra," the latter being prepared during the dry months by the traders entirely by means of imported labour, as no inducement could prevail on the Nicobarese to undertake the amount of sustained labour necessary for the purpose.

The coast inhabitants have already been described as of mongrel Malay stock. Traces of an admixture of Burmese and Siamese blood are not unfrequently met with: while annual visits of Burmese trading junks to these islands will account for the former, the latter may find an explanation in a fact which has of late years come under our notice, *i.e.*, that dug-out canoes from the opposite coast of Junkseylon and the adjacent mainland have every dry season been cast ashore at the Nicobars during the prevalence of the strong easterly gales which regularly visit these islands soon after the termination of the south-west monsoon. In two recent instances (December, 1884, and January, 1885) boats of this kind¹ brought parties of four and seven persons respectively, who, in endeavouring to proceed along the coast of their own country, had been carried out to sea by the force of the wind which had overtaken them and, in spite of all their efforts to regain their course, driven them towards the Nicobars; both parties were fortunately provided with sufficient food for the unforeseen adventure, although the same lasted no less than three weeks. The British occupation now enables such castaways to be conveyed back to their own country, whereas in former years necessity rather than choice

¹ Called by the Nicobarese "henfwat."

may have led to their establishing themselves in the land whither Fate had transported them.

Racially, as well as linguistically, the *Peñ* tribe are distinct¹ from their neighbours on the coast, and it is therefore not unreasonable to infer that in this group as elsewhere the aboriginal population have, in the course of centuries, been driven back into the mountain fastnesses by aliens more powerful than themselves, and who, having been brought to their shores by adverse winds or in the ordinary course of navigation, have taken up their abode in the islands and intermingled with such of the people as ventured to remain in their midst.

The above inference is supported by the fact that the inland tribe is confined to the one large island of the group, viz., Great Nicobar, and that most of the other islands, besides being much smaller, contain large tracts of barren grass-land which, though by contrast with the surrounding jungle contribute greatly to enhance the beauty of the country, afford no lasting refuge to those seeking safety from invaders.

We are as yet cognizant of only three *Peñ* communities² in Great Nicobar where alone this tribe, as already mentioned, exists at the present day, viz., one at *Púlo Bábí* on the west coast, another near Galatea Bay on the south, and a third between *Láfúl*³ and Ganges Harbour on the north-east; but there is good reason for supposing that near Boat Rock on the east coast, as well as further inland, other communities of this tribe will hereafter be discovered.

The, to us, best known of the above-named communities is the one near Ganges Harbour which (as will be seen from the accompanying chart) lies to the north-east of Great Nicobar. From the fact of there being two somewhat widely separated approaches to this section of the tribe it was until recently assumed that they were distinct, but it has been ascertained that although, owing to the densely wooded and mountainous character of the country, there is some difficulty of access between the temporary huts near *Láfúl* and those near Ganges

¹ The late Mr. de Rœpstorff more than once recorded his opinion that the *Shom Peñ* are allied to the natives of Chowra island, but I cannot find that he ever attempted to adduce any evidence in support of his views on this subject. While a glance at the accompanying chart will indicate the *prima facie* improbability of such being the case, I, in common with others, have failed not only to discover any special elements of affinity between the widely separated communities in question, but also to distinguish the natives of Chowra from their neighbours in the central group, and at Car Nicobar. These remarks will, I think, be borne out by the comparison of the photographs numbered 4-8, 13, 17, 19, and 20.

² Since the reading of this paper information has been obtained of two more *Shom Peñ* communities (*vide* Supplement).

³ Lit., "East."

Harbour they are connected by jungle paths which are traversed by the *Peñ* people, and thus intercommunication is continuously maintained. Moreover, there is reason to believe that the permanent huts of this section of the tribe—which are further inland—are less widely separated, and that there is, therefore, less difficulty of intercourse between their occupants than would at first sight appear to be the case.

The earliest mention that we find made of the *Shom Peñ*—as they are called by the coast people, or *Shab Daw'a*, as they style themselves—as a separate tribe, is from the pen of the Danish Missionary, Pastor Rosen, who, while resident in the Nicobars between 1831–3 spoke of them from hearsay as in much the same degraded condition as we find them at the present day; he also added that “they wear no clothes, possess no houses, live like animals in the depths of the forests, and shun the sight of men, never leaving their lairs except to search for food, which they sometimes steal from such of the coast huts as are temporarily vacated or occupied only by a few aged or infirm folk whom they are able to surprise and overpower.”

The coast people consider themselves quite distinct from, and very superior to, the *Peñ* tribe, and invariably express surprise and incredulity at the possibility of any doubt or confusion arising on this point. Whenever I have pretended to mistake any of their number for a *Shom Peñ*, the apparent blunder has been either regarded as a good joke or treated derisively.

Until recent years a constant feud has apparently been maintained by the *Peñ* tribe and their neighbours on the coast, chiefly due, it would seem, to the looting propensities of the former when visiting the shore in order to procure certain coveted articles, *e.g.*, beads, cloth, implements, tobacco, &c., not obtainable inland; they also appear to be on the like hostile terms with their fellow-tribesmen living a few miles to the south in the same jungle, for which circumstance, however, no satisfactory explanation can at present be given, although unmistakable proof of the fact was afforded by the extreme terror manifested by a youth of this community when taken up the Galatea River in May, 1884, in the hope that he might prove of service as an interpreter.

The first recorded visit to the *Shom Peñ* was paid by Admiral Steen Bille in 1846; thirty years later Mr. de Rœpstorff,¹ the officer then in charge of the Nicobars, succeeded in penetrating to one of their temporary encampments near the coast; four or five years later he again made two expeditions to the same

¹ For accounts of these trips *vide* As. Soc. Bengal, 1876.

village, in one of which (March, 1881) he accompanied Colonel Cadell, V.C. (Chief Commissioner of the Andamans and Nicobars), on which occasion an accident occurred, Captain Elton, commanding the vessel, being drowned in the surf while attempting to land; this unfortunate incident brought to an abrupt termination a visit which it had been hoped would prove fruitful of good results in the cause of science.

In February, 1884, I first had an opportunity of visiting Great Nicobar and accordingly proceeded to a Bay on the north-east of that island, where there is a coast village known as *Láfúl* (already referred to), the inhabitants of which are nowadays on friendly terms¹ with the nearest community of the *Peñ* tribe. Having explained the object of my visit to the headman, he agreed to go with me on the following morning to the encampment as guide and interpreter. The first half-mile or so of our trip was made in a canoe up a creek, which brought us to a point near the foot of the hill we had to ascend.

After a rough walk of about two hours through light jungle and over the rocky beds of mountain streams, which at that season of the year were nearly dry, we reached the summit, where we came upon a small cleared plateau (1,100 feet above sea level) on which there were two huts, about 8 feet apart, capable of accommodating one or two families (*vide* Plate XIX): one of these seemed to be used principally for cooking purposes, and was connected with the other by a kind of light bridge; the floorings of these dwellings were about 8 or 9 feet above the ground, and access was obtained by means of ladders. A few pandanus and cocoanut trees were growing near the huts, and there were pigs, poultry, and a couple of snarling pariah dogs attached to the establishment.

Nine members of this community were after some delay induced by my guides to adventure out of the surrounding jungle, whither they had retreated on hearing our approach. A few of them appeared to have belonged to the party seen three years before by Colonel Cadell and Mr. de Rœpstorff; after distributing food and presents, and finding them reconciled to our presence, I exposed a few dry plates, which unfortunately afterwards proved to have suffered from the climate.²

Confidence in the friendly nature of our expedition being established, I proposed a brief visit to the Government Settle-

¹ The good understanding which has lately been established between these two tribes has resulted in their mutual advantage, and a species of trade may now be described as having sprung up, the *Shom Peñ* receiving beads, cloth, dāhs, tobacco, &c., in exchange for split cane, honey, &c.

² I have lately learnt that the accompanying photo (Plate XVIII), as well as portions of others also taken by me, have been reproduced, without reference to me, in the July number of the "Berlin Zeitschrift."

ment at Nancowry, distant about fifty-five miles, and was agreeably surprised to find that I had prevailed on two youths (brothers) to accompany me, on the understanding that I would bring them back at the end of seven days.

These boys rejoiced in the names of *Atéo* and *Atong*, and were aged about eighteen and fourteen years respectively; their father's name was *Aléo*, and their eldest brother (seen on a subsequent occasion) was called *Ayaw*.

In returning to the coast village with the two lads I could not fail to notice the ease and rapidity with which they picked their way down the rugged and, in many parts, steep hill-side. To keep up with them was a matter of some difficulty, and led to a few unpleasant falls which occasioned no little merriment among the party, who remarked that they were the natural consequence of my being a "*kaling-ta-shapáta*" (i.e., booted foreigner).

The lads I brought away with me were fair specimens of their race: their chests and limbs were well developed, they were timid, but tractable, and submitted with a good grace to ablutions which were found very necessary. The younger of the two (*Atong*) having a severe cut on one of his feet, apparently inflicted a day or two before my visit, it was found necessary to place him under medical treatment, his brother remaining with him for companionship. During the five days of their visit they had, therefore, less opportunity of seeing as much of us, or we of them, as would otherwise have been the case.

Although this is the first¹ recorded instance of *Peñ* natives having ventured from their island home, these lads exhibited the Oriental characteristic absence of surprise at all the novel surroundings and tokens of civilisation which met their unaccustomed gaze in the Government Settlement.

Before parting with the youths their relations carefully noted on a strip of cane or bamboo the number of days that would elapse before their return; this they did by bending back the strip so as to form a corresponding number of cracks on its surface. I was of course, therefore, all the more anxious to fulfil my promise to the letter, and when on the appointed day the steamer arrived with them at the coast village, it was found that their friends were already awaiting them. The lads did not return empty-handed, but were provided with a variety of pre-

¹ The late Mr. de Rœpstorff mentioned having seen at Nancowry in 1873 a youth, said to belong to the *Peñ* tribe, who had visited the central group in company with certain natives of a coast village in Great Nicobar; but as this young man had been adopted or captured in his infancy, and had apparently not since been in communication with his fellow-tribesmen, his visit can scarcely be taken into account in this connection.

sents, such as are most prized by all savage races, viz., beads, cloth, knives, matches, tobacco, &c., and doubtless entertained their friends with many stories of their strange experiences while with us.

The custom above-mentioned of bending cane in this manner, and for similar purposes, is shared by the coast people, from whom indeed it is not improbably borrowed. I further found while preparing a list of *Peñ* words that certain of their numerals differ but slightly from their equivalents in the coast dialects, and though, in their low state of civilisation, it is difficult to imagine any occasion arising which could require the use of high numerals, the *Peñ* tribes are found by no means deficient in this respect.

From the subjoined comparative list of numerals in the dialects of the *Shom Peñ* and the coast people of Great Nicobar, it will be seen that the former, while employing in many instances totally distinct terms have yet adopted the somewhat complicated system of notation current among the latter.¹

Great Nicobar.

	Inland Tribes (<i>Shom Peñ</i>).	Coast Tribes.
1	<i>heng</i>	<i>hē-ang.</i>
2	<i>au</i>	<i>āñ.</i>
3	<i>luge</i>	<i>lō'e.</i>
4	<i>fuat</i>	<i>fō'an.</i>
5	<i>tain</i>	<i>tanai.</i>
6	<i>lagau</i> (i.e., 3 × 2) ..	<i>tafū'ah.</i>
7	<i>aiñ</i>	<i>ishdt.</i>
8	<i>towē</i>	<i>enfō'an</i> i.e., 2 × 4.
9	<i>lung'i</i>	<i>hē'ang-hata.</i>
10	<i>tē'ya</i>	<i>sham.</i>
11	<i>heng-mahau-kod-tē'ya</i> ..	<i>sham-hē'ang.</i>
12	<i>au-mahau-kod-tē'ya</i> ..	<i>sham-āñ.</i>
20	<i>heng-inai</i>	<i>hē'ang-inai.</i>
30	{ 20 + 5 × couple. }	{ 20 + 5 couple. }
	{ <i>heng-inai-tain- (ta-au)</i> }	{ <i>hē'ang-inai-tanai (tafū'al).</i> }
40	{ 2 + 20. }	{ 2 × 20. }
	{ <i>au-inai</i> }	{ <i>āñ-inai.</i> }
100	{ 5 × 20. }	{ 5 × 20. }
	{ <i>tain-inai</i> }	{ <i>tanai-inai.</i> }
200	{ 10 × 20. }	{ 10 × 20. }
	{ <i>tē'ya-inai</i> }	{ <i>sham-inai.</i> }
300	{ 10 + 5 × 20. }	{ 10 + 5 × 20. }
	{ <i>tē'ya-tain-inai</i> } ..	{ <i>sham-tanai-inai.</i> }
400	<i>heng-tē'o.</i>	<i>hē'ang-mòmchī'ama.</i>

¹ Among the Appendices to my Nicobar Vocabulary (for the publication of which arrangements have already been made) is one which describes this system.

That an elaborate system of numeration should be found among the coast tribes is scarcely surprising, seeing that they have to treat, in their trading operations, with quantities of cocoanuts frequently amounting to hundreds of thousands,¹ but in the primitive condition of the inland tribes no such explanation can be given to account for the fact of a like system obtaining amongst them, for they have no dealings with cocoanuts or similar produce, and their transactions are almost entirely confined to bundles of cane which they bring to the coast people for local purposes, and in exchange for which they receive articles not otherwise procurable by them.

Of words in ordinary use there are very few in the *Shom Peñ* dialect which bear any resemblance to the equivalents in the language of the coast people; where similarity of sound occurs it is found to be in connection with matters of which until recently they were in ignorance, and to express which they have therefore borrowed the terms current among their neighbours; *e.g.*—

English.				Shom Peñ.				Coast Word.			
Ship	..	..	..	<i>chó'ag</i>	..	..	..	<i>chóng.</i>			
Canoe ²	..	..	..	<i>dō'ai</i>	..	..	..	<i>dū'e.</i>			
Cloth	..	..	..	<i>lō'e</i>	..	..	..	<i>lō'e.</i>			

With this brief allusion to their dialects I must content myself at this time, and pass on to describe the next visit to the *Peñ* tribe, which I paid in company with Colonel T. Cadell in May, 1884.

We landed at *Láfúl*, and, assisted by our former guides, ascended to the same *Peñ* encampment, where we met fourteen members of the tribe, including *Atéo*, *Atong*, *Ayaw*, and *Ko'añl*, the last named being the individual already alluded to as the only member of this tribe hitherto seen with other than straight hair. Presents and food were distributed, and photographs of the group, as well as of their dwellings, were taken, after which an impromptu entertainment was given for our delectation. A young woman credited with supernatural

¹ The annual produce is estimated as between 15 and 20 million nuts, of which some 6 millions are exported unhusked, or in the form of "kopra," in exchange for which the Nicobarese accept a variety of articles, principally dāhs, knives, silver, electro ware, &c.; they appear to regard gold as little more valuable than brass.

² As will be seen in the Supplement, it has within the last few months been found that the *Shom* make rafts and canoes, the latter for barter as well for their own use.



THE PHOTO. SPRAGUE & CO. LONDON

GROUP OF SHOM PEN, GANGES HARBOUR.

powers was seated in the centre of the dome-shaped hut, and strips of palm leaves were suspended round her in such a way as to form a sort of curtain; then one of the men, feigning sickness, placed himself at full length on the ground near her, whereupon she proceeded to mumble and press his limbs, and he, acting his part, simulated gradual recovery, on the full attainment of which the performance terminated.

As we wished next to proceed to Galatea Bay at the south end of the island in the hope of meeting some of the same tribe whose presence in the vicinity of the Galatea River had been reported by Admiral Steen Bille in 1846, we induced *Atéo* to accompany the expedition. On arrival at Galatea Bay on the following day I was unfortunately unable to accompany the party on account of an attack of fever. To the surprise of those who took part in the trip up the river *Atéo*, on discovering the apparent object of the expedition, displayed considerable uneasiness, so much so that before he could be prevented he scrambled into the water and swam ashore; his movements, resembling those of a dog, clearly showing his want of skill in the art of natation. After he had been recaptured on the bank and brought back to the boat, it was found necessary to tie his hands and feet together, and even then four persons were engaged in holding him down, so great was the terror he evinced; it was not until the boat retraced its course towards the sea (the expedition having failed in its object of finding any *Peñ* encampments¹) that the poor fellow recovered from his fright and regained confidence and composure. On his return to the steamer he pointed with a smile to the cuts on his arms and legs made by the rope during his struggles in the boat. There being no further need of *Atéo's* services (!) he was landed at *Láfúl* on our way back to Nancowry.

My next trip to Great Nicobar and the *Shom Peñ* territory was made in the following September, when I again ascended the hill near *Láfúl* and found everything in much the same condition as on my former visits. After distributing food and presents I took some photographs and returned to *Láfúl* where I saw *Atéo*, *Ko'áníl*, and three other *Shom Peñ*.

I took their photos and persuaded *Atéo* to accompany me to Ganges Harbour, to assist me in making the acquaintance of his fellow-tribesmen residing there, and to endeavour to induce them to come with him on a visit to the Government Settlement. This he agreed to do provided certain of his coast friends would consent to escort him there and back; on this point we had no difficulty, and as soon as matters were arranged to our mutual

¹ In consequence of the community having removed to the jungle bordering the western shore of Galatea Bay.

satisfaction we weighed anchor and steamed round the north-east point of Great Nicobar, and anchored in Ganges Harbour. On landing in one of the small shallow bays on the east side of the harbour I sent *Atéo* and his coast friends in advance to prepare any members of the *Peñ* community they might meet for my intended visit. I followed a few hours later, and found that the *Shom Peñ* in this part possessed some small scattered clearings sufficient for the erection of a few temporary huts which they occupy from time to time on their visits to the shore, where, or in the vicinity of which, they collect such jungle products and obtain certain requirements of their daily life as are not procurable in the interior. Only a few members of the community put in an appearance, but these we convinced of our friendly intentions by giving them a quantity of food and sundry presents; I then obtained, with the assistance of our mutual friends (the coast people), a long list of *Shom Peñ* words in common use, including their numerals. Six of the party were then photographed, and two of their number¹ were persuaded to accompany *Atéo* in a trip to Nancowry. Promising to return with them in six days we started on our homeward journey, which proved very rough and stormy; in spite of the discomfort they had to endure on the open deck the lads behaved well, uttering no complaints.

After spending a few hours at my house they were invited by the headman of a neighbouring village, named Johnson—who, having accompanied us on our recent voyage, was no stranger to them—to pass a few days with him; the lads were willing to go, and I saw no reason to prevent their doing so, as they were to be accompanied by their *Láfúl* friends. On the second morning of their absence I received the startling news of their sudden disappearance during the previous night; as nothing had occurred during the thirty-six hours of their stay in the village which could have excited any apprehensions in their minds, considerable surprise and uneasiness was caused by their conduct. Every effort was at once made to discover their hiding place, but the fugitives had taken the precaution of treading on stones, logs, and spreading roots of trees, &c., so that only a few footprints were visible leading into the jungle where all further trace of them was lost.

As they had not yet made their reappearance up to the day of my promised return, I was obliged to start without them, but in order to let them know that I was doing so (it having been ascertained that they were still in the neighbourhood, fruit and other food having been missed) I tried to warn them of my

¹ The names of these two lads were *Panoñ* and *Dedoñha*.

movements by using the steam-whistle, with the sound of which they were by this time familiar, but all in vain. On arrival at *Láfúl*, the position of affairs was explained to *Aléo* and *Ayaw*, father and brother of *Atéo*, who consented to visit Nancowry and assist us in searching for the missing trio. On our return we were greeted with the news that on the very night of our departure, a small canoe and three paddles had been surreptitiously removed from a village near Johnson's, from which circumstance, as well as from certain footprints on the sand, the natives concluded that the runaways, taking notice of the departure of the steamer, and regarding the chances of a return to their homes as lost, had made a foolhardy attempt to reach Great Nicobar in a canoe. Although the weather was fine, their ignorance in handling a canoe would have precluded the possibility of their reaching in safety any of the southern group of islands.

Notwithstanding that two or three trips were made by the steamer to leeward of the course probably taken by the boat, and in spite of inquiries made at the various islands between Nancowry Harbour and Great Nicobar, nothing was ever again heard of the unfortunate lads.

Aléo and *Ayaw*, after a brief stay at Nancowry, during which they were photographed, were conveyed back to their homes, where it is hoped they informed their friends that the disappearance of the trio was due to no fault or foul play on our part. Nevertheless, the relations between the coast-people and the inland tribes near Ganges Harbour were for several weeks not a little strained; but I was assured during my last visit to the island (April, 1885) that intercommunication had been re-established on the former footing. I had, however, no opportunity of confirming the truth of this statement from personal observation, as my only subsequent trip to Great Nicobar, with the object of communicating with the *Shom Peñ*, was made in the above-mentioned month in company with Colonel Cadell, when we visited other encampments near Galatea Bay and *Púlo Bábí*. At the former place we had ascended eleven or twelve miles up the river when our progress was arrested by a large fallen tree across the stream. As we had been previously assured by the coast natives that the *Shom Peñ* community in these parts had some time since removed from the banks of the river to the jungle eastward of Galatea Bay, we were prepared for the absence of all traces of the encampment seen by Admiral Steen Bille thirty-nine years before. During this visit we were told by the villagers on the east shore of the Bay that the *Shom Peñ* had, a few days previously, made a raid on one of their isolated huts, which they had robbed and burned; owing to the briefness of our visit, we were unable to ascertain for our selves the truth of the accusation.

At *Púlo Bábi* we were more fortunate, and under the guidance of the coast people there were led about two miles inland to a secluded spot near the creek. One or two of our guides went on in advance to warn the *Shom Peñ* of our approach; we therefore found them prepared to receive us, and as composed as if such an event as a visit from Europeans was a matter of every-day occurrence, whereas there is every reason to believe that none of the party had ever before seen a white face. From their demeanour, and the silence they maintained during the half-hour we spent in their company, it was evident that they were somewhat apprehensive of our intentions and awed by our strange appearance. The clearing that they occupied was only about 30 yards square, but the litter from split cane and secondary growth left little space for locomotion.

I exposed two or three dry plates, but owing to the dense overhanging foliage, and the difficulty of making the *Shom Peñ* understand the necessity of all keeping still together for two or three seconds consecutively, the exposure proved insufficient. We found the people of this community were evidently of the same race as those between Ganges Harbour and *Láfúl*; nothing, in fact, could we discover about them or their surroundings which could distinguish them from the latter: they wore the same scanty attire, and similar bead necklaces, ear-sticks, and headbands, mention of which will shortly be made. Their huts were of the light frail description denoting occasional occupation.

Judging from the small parties of the inland tribe which we have hitherto seen, these savages may be described as very fairly developed, well-nourished, and while young favoured with pleasant features. Their skin is fairer than the generality of the coast men, who again are usually less dark than the Malays. At this early stage of our intercourse it is hardly necessary to say that it has been impossible to subject a sufficient number to careful and systematic measurements, but from such rough calculations as have been made the average height of the *Peñ* male adults appears to range between 5 feet 2 inches and 5 feet 8 inches, which is about 2 to 3 inches less than the ordinary stature of the coast tribes. Their eyes conform to the Mongolian type, and the ears, like those of the coast people, are pierced for the insertion of a wooden or bamboo ornament; one woman I found wearing a disc measuring 5 inches in circumference.¹ As mentioned in my monograph, "On the Aboriginal Inhabitants of the Andaman Islands" (*q.v.* p. 115), the coast villagers in the Nicobars are in the habit of flattening the occiputs of their infants. As the *Shom Peñ* have not adopted this practice it is to be

¹ This object I have lately forwarded to Professor Giglioli, Florence.

supposed that they fail in considering it an improvement upon nature. The feet and hands of the *Shom Peñ* are large and coarse, and testify to the rough work on which they are habitually engaged.

Unlike the coast people, among whom it is the practice for the women to keep their hair closely clipped,¹ and for the men—at least on many of the islands—to cut theirs also when mourning, the *Shom Peñ* of both sexes have been remarked as wearing their hair uncut and unkempt, and as habits of cleanliness are foreign to their nature its condition can better be imagined than described; it is straight and lank, and rarely reaches below the shoulders; the colour is black or dark-brown. It is asserted, with how much truth I am not yet in a position to state positively, that when engaged in hostilities the men are in the habit of cutting off their hair in order that it may not prove an inconvenient assistance to the enemy at close quarters. Little or no hair is seen on the face although neither shaving nor depilation are practised.

As a result of their friendly intercourse in recent years with the coast people, the inland tribe are gradually acquiring the habit, so generally practised among the latter, of chewing the betel-nut, *Chavica betle* (*pán* leaves), with or without quicklime, and are consequently beginning to be similarly disfigured with black teeth. Happily for their personal appearance they have not yet adopted the custom to such an extent as to render the teeth hideous and unrecognisable from being coated with a thick hard mass protruding from the gums so as to make it in many cases an impossibility for the lips to meet. This remarkable disfigurement, which is more or less commonly seen among most of the inhabitants of this group, is said to be favourably regarded by the fair sex, who, indulging as they do, though in a less degree, in the same habit, would scorn to accept the addresses of one possessing white teeth, "like a dog or pig"! The only plea to be urged in favour of the revolting practice is that it seems to procure immunity from toothache, a malady almost unknown among the Nicobarese, who also attribute their exemption therefrom to this cause. It is a strange fact that their sense of taste appears in no way affected, and that their powers of mastication are likewise unimpaired.

In the matter of attire the *Peñ* males affect the peculiar loin cloth which among the Nicobarese—as formerly among certain other tribes in the Malayan Archipelago²—satisfies the require-

¹ This is said to be due to their being so generally employed in cooking and preparing food.

² "The original dress of the males, to which a few individuals whom I met are still restricted, is the *chávát*—a narrow strip of cloth passing between the legs

ments of decency. It usually consists of a strip of Turkey red cloth, about 6 feet long and 3 or 4 inches wide, which is so adjusted between the thighs and round the hips as to allow of some 12 or 15 inches hanging down behind giving the appearance of a tail. From the clumsy mode in which this garment is worn by the *Shom Peñ*—necessitating frequent re-adjustment of the folds—one is led to infer that its use is not *de rigueur*, but reserved for special occasions, as when receiving or visiting strangers. The women are content with a short skirt of blue cloth when obtainable, or they provide themselves with a similar garment made of the bark of the *Celtis vestimentaria*.¹ In addition to the ear ornaments already mentioned, both sexes affect small bead necklaces, and they further usually bind a spathe band or a piece of cloth round the head.

Regarding the moral and psychical characteristics of the *Shom Peñ*, we are not yet in a position to speak with any certainty; the scanty information we have as yet obtained having been gathered from the coast people cannot be altogether relied upon for accuracy; on these, therefore, as well as upon other points of ethnological interest, I am unable to enlarge in the present paper. It should also be borne in mind that the task of obtaining information regarding the habits, customs, &c., of the *Shom Peñ* is not easy of accomplishment, for apart from hindrances due to want of knowledge of their language, distance from Nancowry, and consequent inability to make many or lengthy visits, their natural fear of Europeans (and indeed of all strangers), as well as their constant feuds with the coast inhabitants, and seemingly even with other sections of their own tribe, combined with their frequent absences on hunting or predatory expeditions, present serious obstacles to careful and systematic observations.

I may casually mention that the sole weapon used by the *Shom Peñ* is a wooden pointed spear (called "*hin-yuan*"), which is regularly notched near the upper part in order to serve the purpose of barbs.² The huts of the *Shom Peñ* are much smaller and ruder in construction than those found in the Nicobarese

and fastened round the waist." (*Vide* "The Binuas of Johore," "Journ. Indian Archipelago," 1847, p. 252.)

¹ "Many of the Mintirā around Gunong Bermun still wear the bark of the *tiráp*, the men using the *chávát*, and the women a piece of rude cloth, formed by simply beating the bark, which they wrap round their persons, and which, like the sarong of the Johore females, reaches only from the waist to the knees. The Udái females wear the *chávát* like the males." (*Vide* "Journ. Indian Archipelago," 1847, p. 253.)

² *Vide* Plate XXVI, fig. 5, of vol. xi, "Journ. Anthropol. Inst.," 1881. In the same plate, and in Plate XV of vol. vii (1878) of the same Journal, will be found illustrations of the various spears, as well as sundry other objects made and used by the coast inhabitants of these islands.

villages along the coast or in the other islands of the group; but those that are of a permanent character sometimes partake of the same beehive form which commonly mark the dwellings of the coast people, being in like manner raised on posts 6 or 8 feet above the ground, entrance is effected by means of a primitive ladder formed of rough pieces of wood, bamboo or rattan, lashed together with strips of cane. The space beneath the hut is sometimes fenced in, or the posts on which it is raised are ranged so closely side by side as to form a species of den or cage wherein they confine and fatten any pigs they succeed in capturing alive. A separate hut of low construction is occasionally seen in these encampments which has been specially erected as a pigsty.

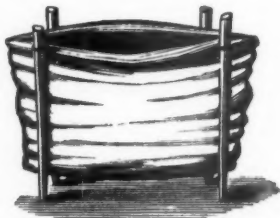
The roofing of these huts is ingeniously contrived, and consists of large sheets of a description of bark resembling somewhat the spathe of the *Areca augusta*. I have not yet obtained information as to the method of its preparation, and can therefore only here note that if not entirely waterproof it affords very fair protection even in the heavy showers so common in these latitudes.

A further difference is also observable in the huts of the *Shom Peñ* which are found within easy distance of the shore and those a few miles inland. The former are smaller and more frail, while the latter, as being intended for permanent occupation, bear evidence of some care in construction, and are usually erected on small clearings, preferably on the summits of one or other of the numerous hills which afford suitable sites for the purpose; where this is not practicable a spot is selected in some remote situation, or which commands a view of its approaches: this fact is of course easily explained by the constant feuds which have so long been maintained between themselves and their coast neighbours, and, judging from the incident already related, other *Peñ* communities.

In the roughly cleared spaces near their huts the *Shom Peñ* are found to be in the habit of planting yams and other edible roots, as well as fruit trees, such as cocoanuts, pandanus, &c., which, being indigenous to the soil, require little care in cultivation. In their ignorance of agriculture they are, however, compelled after a few years to abandon land which has become impoverished, and accordingly betake themselves to new sites. It has been observed that these plantations are sometimes enclosed by a rude fencing, presumably to protect them from the depredations of wild pigs; the fallen trunks of trees in these clearings are not burnt or cut up, but are turned to some account by being used as footpaths through the surrounding undergrowth.

Probably the most striking peculiarity in their domestic arrangements is the sack-like cooking vessel, which is made of a stout bark substance similar to that already referred to as

being used for the roofing of their huts.¹ A large sheet of this bark is folded and secured by means of posts stuck into the ground in such a way as to present much the appearance of an open sack; the depth varies from 1 to 3 feet, but depends to some extent on the size of the piece of bark available; the bottom of this utensil is generally about a foot above the ground so as to allow sufficient space for a fire underneath.



SHOM PEN COOKING VESSEL.

The accompanying sketch will perhaps make my meaning a little more clear. I should add that these unique cooking vessels,² which appear to be used for boiling meat, pandanus, yams, &c., are declared to be commonly found throughout all the scattered encampments of this inland tribe. It is said, however, that the communities living on the west coast (near *Pálo Bábí*) appreciate the superiority of earthen pots over their own bark sacks for cooking purposes, and are glad to procure through the coast people specimens manufactured by the inhabitants of Chowra.³

Repeated efforts have been made to colonise the Nicobars, but they have all hitherto resulted in failure owing to the deadly malarial fever which prevails more or less at all seasons of the year throughout the group, and which has proved especially trying and fatal to Europeans and other foreigners who have attempted to settle, or who have even merely visited the islands in the last and present centuries. Instances indeed are recorded of persons who have succumbed after spending a few hours only in some more than usually malarious spot.

The comparatively low death-rate of the new British Settlement at Nancowry Harbour, which has always been distinguished as one of the most unhealthy localities, is of course in

¹ For their cooking vessels they employ the bark of three varieties of trees known to them as *hon go'ng*, *takô*, and *minfô'a* (this last has been identified by Dr. King as *Calophylleene* sp.); whereas for their huts they use one or both of the trees not yet identified, but called by them *ôk-fûk* and *dai-ôk-shuák*.

² A specimen, forwarded by Colonel Cadell to Edinburgh, may be seen in the Museum in that city.

³ These treasures are seldom obtainable, however, as the coast people rarely procure sufficient quantities for their own requirements.

great measure due to the sanitary precautions which have been adopted during the past sixteen years, as well as to the facility with which sufferers who fail to recover can be removed to one or other of the various healthy stations in Port Blair Harbour (Andaman Islands), distant about 240 miles. It is, however, a melancholy fact that, in spite of apparent recovery and ability to resume work, many have suffered serious, if not permanent, injury from the effects of this fever; even the aborigines themselves do not enjoy immunity from its ravages, but are frequently prostrated by it, and many of the deaths which occur among them are distinctly traceable thereto. Among the other ills to which the Nicobarese are subject is elephantiasis, the causes of which may probably be found in the damp nature of the climate, the insanitary conditions of their village sites and surroundings, and the foul water, although of this they partake but sparingly, being much addicted to the use of *dábs* (water of the young cocoanuts) and palm wine (*tari*).

An attempt is now being made to colonise these islands with Chinese, and there can be but little doubt that if sufficient inducements are offered to lead them to establish themselves in large numbers on any of the thinly inhabited and fertile islands a marked improvement will soon be visible in the sanitary condition of the particular locality selected, as clearances of jungle, reclamation of swamp land and its cultivation, are essentials which would at once occupy the attention of these excellent colonists, leading inevitably to the same happy results which have been experienced in the now flourishing and healthy colonies of Penang and Province Wellesley, formerly so notoriously insalubrious.

Before concluding this paper it may not be uninteresting to note briefly the various attempts made in modern times by missionaries and foreign Governments to convert the Nicobarese and to colonise their islands. Omitting Köeping, who, in 1647, merely made a flying visit and brought away a fanciful story of men with tails, since explained by the mode of attire affected by these islanders, and to which allusion has already been made, we come to the mission, extending over two years (1711-13), conducted by two Jesuit priests who are said to have met with a violent death at Nancowry. The next settlers were Danes who, in 1754-6, established themselves at Great Nicobar, but within a year moved to Nancowry, where they remained for some time on the spot now occupied by our colony. Twelve years subsequently (*viz.*, in 1768) some Moravian missionaries from Tranquebar settled on the opposite side of the same harbour, where they and their successors, numbering twenty-five in all, laboured for nineteen years without being gladdened by the

conversion of a single native, while they each in turn, either there or soon after their removal to Tranquebar, fell victims to the fever, one alone of their party escaping with his life, who, writing many years after his return to Europe, mentioned that he was still subject to constant returns of the same malady. On the abandonment of the mission, and in order to assert their claim to the islands, the Danes maintained a petty establishment in Nancowry Harbour during the next twenty years, at the expiration of which (viz., 1807) they were ousted by the British, with whom their country was then at war; seven years later, however, the islands were restored to Denmark, and were nominally occupied till 1837. During the last six years of this period a second attempt to Christianise the islanders was made by a mission under Pastor Rosen, but owing to sickness, and the continued apathy of the natives, the result was again ill-success and abandonment.

A final attempt to form a Danish Settlement was made on the occasion of the expedition of the R.D. corvette "Galathea" in 1846, when a careful survey of the islands was undertaken, but two years later this experiment was relinquished, and the Danes finally quitted the island. It was not, however, until 1869 that their connection with the Nicobars was completely severed, and the group annexed by the British under the circumstances already narrated.

It remains to be stated that while the present colony has completely attained its original object of suppressing the piratical acts of which the natives, especially of the central islands, had been guilty during a long series of years, it has also been the means of attracting a regular and growing trade with neighbouring countries, and at the same time raising the natives from the condition of ignorance in which they had previously existed regarding the benefits and resources of civilisation.

SUPPLEMENT.

[*Added after the paper had been read.*]

Early in the current year Colonel T. Cadell, accompanied by Mr. E. H. Man, paid another and more interesting visit to the *Shom Pen* encampments of Great Nicobar, the results of which are embodied by Mr. Man in the following notes.

Leaving Nancowry on the 7th January we spent six days in the southern islands of the group, and were enabled, through the assistance of our coast friends, to visit some of the encampments already described, and also another on the west coast of Great Nicobar, whither no European before had trespassed.

We now are aware of five sections¹ of the inland tribes which are more or less well known to the coast people, having each huts and gardens within a mile or two of the shore. It is further positively asserted that there are other communities of the same tribe living in the depths of the jungle who, like the *ērem-tā-ga*- of the Andaman forests, rarely if ever venture to come down to the sea. We are not yet able to ascertain the exact position of these villages, or their probable strength, inasmuch as the coast people have only on one or two occasions penetrated so far inland.

The encampment now visited for the first time is situated on the bank of a river² hitherto unknown to us, but which proves to be as fine as the Galatea.

We had paddled up the stream for about an hour when we came upon a hut, which, from the neatness of its construction, might have been readily mistaken for one erected by the coast people; the chief differences to be noted were, first, that the posts were not so firmly planted, and secondly, that the floor was raised 10 feet above the ground in lieu of 6 or 7 feet, as is usual in the coast villages. On entering the hut we found two men and two women, seated tailor fashion, cross-legged on the floor, *i.e.*—

1. *Gai*, a man probably about thirty years of age, and husband to the two women.
2. *Dau*, a youth of about eighteen, and unmarried.
3. *Kīnai* }
4. *Kō'ap* } Half-sisters and wives to No. 1.³

These four persons had hair reaching below their shoulders, unkempt and uncut; in their ears were large wooden ear-sticks; their skin was of the same colour as that of the coast people to whom also they bore more resemblance, both in feature and general appearance, than has been noticeable among the *Shom Peñ* of other communities.

Both men had on loose Chinese drawers, and also the ill-adjusted loin-cloth, which they evidently wear in imitation of the *neng* of the coast men.⁴

¹ These encampments are found at the following points:—

1. Near Lálú and Ganges Harbour. (Reckoned as one owing to constant intercommunication.)
2. At Galatea Bay.
3. Near Pulo Babi, on the west coast. (Visited last year for the first time; it is called by the natives "*dák-ta-gal*.")
4. Near Kashindōn on the west coast. (Called "*dakan-kat*.")
5. Between Kashindōn and Pulo Pet. (This encampment is known as Pulo Kungi, and has yet to be visited.)

² The native name of the river is "*dák-a-naing*."

³ I took special pains to have this point so confirmed as to leave little room for doubt as to its accuracy.

⁴ The *Shom Peñ* declare that the adoption of this garment is of recent date,

Gai (No. 1) had two necklaces of string, one of which was black from long use, but the other was newly and neatly made of a whitish fibre twisted evenly round a narrow strip of some red cotton fabric:¹ with this he was willing to part, receiving in exchange a bead necklace I had brought with me.

Dau (No. 2) had no necklace.

Both women had small coloured bead necklaces similar to the one I had just bestowed upon *Gai*; they wore the usual short cotton shirt, and had a piece of the same material wound round the upper part of their persons; they had also bands of fibre round their heads, apparently to keep the hair from falling over the face when cooking or stooping, &c.

Kōap (No. 4) is the first *Shom Peñ* I have seen with the disfigurement so common among the coast people, *i.e.*, with the front teeth of the upper jaw encrusted together so as to protrude and prevent the lips from closing; it would be a matter of difficulty, if not an impossibility, for one tooth to be extracted without the others.

At the further end of the hut, opposite the entrance, as is also the custom of the coast people, was a sanded hearth,² on which were standing three of the sack-like cooking vessels peculiar to the *Shom Peñ* (called *tē-ag*); they were of different sizes, and I observed that the sides were kept apart by means of sticks placed across inside.

The impression we produced upon our new acquaintances was apparently favourable, for they intimated through our guides that if we returned in a few weeks' time they would be willing to accompany us on the return journey.

On our way back to the coast we sighted a small canoe containing a young couple (called *Patōi* and *Taiñ*), belonging to the community we had just been visiting, who had, it seems, been absent on some fishing expedition; immediately on perceiving us they turned and paddled away rapidly until assured by the shouts of our coast companions that they had no cause for fear, when they allowed us to come up with them and showed no further signs of alarm, but willingly walked with us and accepted presents of beads, tobacco, biscuits, &c.

In noting down the words for common objects as spoken by these (*dakan-kat*) people I found that in most instances they differed from the equivalent used by the *Shom Peñ* of Láfúl and Ganges Harbour. Each community of the tribe appears to

"within the memory of living men"; this probably indicates the period during which less hostile relations have existed between the coast and inland tribes.

¹ This necklace measures 10 feet 9 inches in length, and the red cotton foundation is $\frac{1}{4}$ inch in width.

² When fire is not otherwise obtainable, the *Shom Peñ* produce a flame by means of the ordinary fire sticks.

possess a dialect more or less distinct, but this is what might reasonably be expected when we consider the isolation of the several encampments, and the difficulties of intercommunication, apart even from the hostile relations in which they stand towards one another.

The surprising discovery was made on this trip that the *Shom Peñ*, or at any rate certain sections (viz., those at Láful and Ganges Harbour and on the west coast), are in the habit of constructing rafts and boats, the latter not only for their own use, but also for purposes of sale, or more properly speaking, of barter, with the coast tribes. We saw both rafts and canoes; the former are made of bamboos neatly tied together, and the latter are not distinguishable from those seen at the coast villages, except perhaps from the fact that they are not quite so carefully finished. The size of the canoes made for their own use varies from 6 to 10 feet, but we are informed that much larger ones measuring sometimes as much as 20 to 24 feet are made for the coast tribes to whom it seems that the finishing of these crafts is invariably left.

The *Shom Peñ* do not venture out to sea in their skiffs, but use them merely for crossing the rivers or creeks near which their encampments are situated, or for skirting along the coast where they plant fishing stakes which are similar in every respect to those seen in Malay villages.

After leaving *dakan-kat* and the west coast we went to the Ganges Harbour community, which had not been visited since the unfortunate disappearance of one of its members and two other youths in September, 1884 (*vide ante* p. 438). We took the precaution of sending our guides in advance to reconnoitre, and were informed on their return that only two men were within hail as far as they could ascertain, but that these were unwilling to accept their assurance that *friends* were about to pay them a visit. Nevertheless we proceeded on our way, taking presents and my camera. I found that one of the men was *Poko*, father to *Dehoñha*, one of the missing lads; nothing worthy of note transpired during the visit, but I succeeded in taking a photograph of the clearing, with the three tiny huts and their occupants.

We noticed that the trunks of the cocoanut trees were encircled with pieces of the stems of the thorny calamus, evidently with a view of warning strangers that the fruit was not to be touched. Among the coast tribes a similar practice obtains, but they deem it sufficient to tie a leaf round the trunk, and the vast majority accept the token as a warrant of ownership.

It is said that the *Shom Peñ* bury their dead, but do not

afterwards disinter the remains, as is done by the coast people throughout the group. The limbs of the deceased are tied together, and the corpse is placed in a sitting posture in a grave which has been prepared in the jungle surrounding the encampment. The huts are then deserted, and the locality only visited for the purpose of gathering the ripening fruit in the plantation which generally is found in every *Shom Peñ* village. As permanent abandonment of an encampment on account of a death would lead to great inconvenience, I am prepared hereafter to learn that, as among the Andamanese, there is a limit placed on the *tabu* in such cases.

Explanation of Plates XVII to XIX.

Plate XVII.—Sketch map of the Nicobar Islands, showing the position of the *Shom Peñ* tribe.

Plate XVIII.—Group of *Shom Peñ*, from Ganges Harbour, Great Nicobar. Enlarged from a photograph by Mr. Man.

Plate XIX.—*Shom Peñ* hut, near *Láfúl* village, north-east of Great Nicobar. From a photograph by Mr. Man.

DISCUSSION.

Dr. MOUAT said, in response to the call of the President, that he was afraid he could throw no light upon the matter regarding the Nicobarese contained in the excellent paper of Mr. Man. He had not landed on any of the islands, and had no personal knowledge of their inhabitants. The little information he previously possessed was derived from a well-considered monograph written by an old friend and schoolfellow of his, the late Captain Harold Lewis, who had accompanied Commander Stein Bille in the visit to the Nicobars mentioned by Mr. Man, which led to the cession of the islands to the British Government. Captain Lewis's monograph recorded many interesting facts regarding the islanders as they then were, but Dr. Mouat had unfortunately mislaid the brochure, and could not venture to state from memory, unaided, how far the people were then as they are now. He regretted this, as the history of the fast disappearing aboriginal races of the Tropics was of considerable scientific interest. As respects the kindly mention made of his own work in the Andamans, Dr. Mouat was well aware of the liability to error of all observations made in difficult circumstances, but in the expedition under his charge every care had been taken by himself and his colleagues, the late Dr. George Playfair and Captain Heathcote, of the Indian Navy, to verify the accuracy of all the statements embodied in his official report. The work was divided between them, and at the end of each day was reduced to writing, carefully discussed, and the results finally



INA PHOTO SERAGUE & C. LONDON

SHOM PEN HUT. LÁFUL.

recorded by himself at the time. The object of the expedition was the difficult task of selecting a suitable locality for the formation of a final settlement for the Sepoy Mutineers, and to this all else was of necessity subordinated. The difficulty of making observations of any kind was greatly injured by the constant hostility of the brave and bold savages who opposed them on every possible occasion. On completing the urgent work entrusted to the Andaman Committee, Dr. Mouat urged the late Lord Canning to permit the expedition to go back and thoroughly explore both the Andaman and Nicobars, but the exigencies of that time prevented a compliance with his request, the scientific interest and importance of which that great viceroy fully recognised.

JANUARY 12TH, 1886.

FRANCIS GALTON, Esq., F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and signed.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

- From SIR JOHN LUBBOCK, Bart.—*Ymer Tidskrift utgifven af Svenska Sällskapet för Antropologi och Geografi.* 1881. 1a–4e Häft.; 1882. 1, 2, 6, 7, 8e Häft.; 1883. 1a Häftet.
- From C. H. E. CARMICHAEL, Esq., M.A.—*Report of the Royal Society of Literature*, 1885.
- From Messrs. TRÜBNER & Co.—*A Compendium of the Castes and Tribes found in India.* By Eustace J. Kitts, B.S.C., M.R.A.S.
- From ALEXANDER AGASSIZ, Esq.—*Twenty-fifth Annual Report of the Curator of the Museum of Comparative Zoology at Harvard College*, for 1884–5.
- From Dr. J. KOPERNICKI.—*Charakterystyka Fizyczna Ludności Galicyjskiej. Seryja II. Opracowana przez Drów J. Majeria i I. Kopernickiego.*
- From the DIRECTOR OF THE UNITED STATES GEOLOGICAL SURVEY.—*Fourth Annual Report*, 1882–3.
- From the AUTHOR.—*The Periodic Law.* By John A. R. Newlands.
- *Notes on the For Tribe of Central Africa.* By Robert W. Felkin, M.D.
- *The Prytaneum, the Temple of Vesta, the Vestals, Perpetual Fires.* By J. G. Frazer, M.A.

From the AUTHOR.—Notes on the Geological Position of the Human Skeleton lately found at the Tilbury Docks, Essex. By T. V. Holmes, F.G.S.

— Gli Antichi Oggetti Messicani incrostatati di Mosaico esistenti nel Museo Preistorico ed Etnografico di Roma. Memoria del Socio Corr. Luigi Pigorini.

— Dalsze Poszukiwania Archeologiczne w Horodnicy nad Dniestrem. Opisał Dr. L. Kopernicki.

From the ACADEMY.—Actas de la Academia Nacional de Ciencias en Córdoba. Tom. V, Ent. 2.

— Antiquarisk Tidskrift för Sverige, utgifven af Kongl. Vitterhets Historie och Antiquitets Akademien. Del. VII, Nr. 4.

— Atti della Reale Accademia dei Lincei. Ser. quarta. Vol. I, Fas. 25–27.

From the SOCIETY.—Proceedings of the Royal Society. No. 239.

— Journal of the Society of Arts. Nos. 1725–29.

— Proceedings of the Royal Geographical Society. 1886, January.

— Proceedings of the Asiatic Society of Bengal. 1885, Nos. VI to VIII.

— Journal of the Asiatic Society of Bengal. No. 263.

— Bulletin de la Société de Borda, Dax. 1885, No. 4.

— Transactions of the Anthropological Society of Moscow. Vol. XXXIII, Appendix; Vol. XLIII, Part 2.

— Viestnik hrvatskoga Arkeologičkoga Društva. Godina VII. Br. 4.

From the EDITOR.—Journal of Mental Science. New Series, No. 100.

— "Nature." Nos. 841–845.

— "Science." Nos. 147–151.

— American Antiquarian. Vol. VII, No. 6.

— Revue d'Ethnographie. Tom. IV, No. 4.

— Matériaux pour l'Histoire de l'Homme. 1885, Decembre.

— L'Homme. Nos. 21, 22.

— Archivio per l'Antropologia e la Etnologia. Vol. XV, Fas. 2.

The election of Mrs. C. BROOK (H.H. the Ranee of Sarawak) was announced.

Mr. BRYCE WRIGHT exhibited an ancient bronze sword, found by the late Captain Sir William Peel, R.N., at Sandy, Bedfordshire.

Mr. G. F. LAWRENCE exhibited some palæolithic flint implements found by him in gravels at junction of the Thames and the Wandle.

The following paper was read by the author:—

The ARCHÆOLOGICAL IMPORTANCE of ANCIENT BRITISH LAKE-DWELLINGS *and their relation to* ANALOGOUS REMAINS *in* EUROPE. By ROBERT MUNRO, M.A., M.D.

It appears to me that the time has now arrived when an effort should be made to interpret the historical value of the antiquities recovered from the sites of ancient lake dwellings, now so numerous discovered and recorded in this country. For the purpose of furthering this object I have prepared a short epitome of the main facts of these discoveries, together with certain inferences which they appear to me to suggest, with the view of eliciting the opinions of members of this Institute, many of whom are particularly competent to deal with the problem. However much variety or novelty may add to the interest attached to such discoveries, it must never be forgotten that their scientific value is to be determined by the extent to which they can be made to enrich our knowledge of the past phases of human civilisation. When we consider that ancient authors are not altogether silent on the habit which prevailed among some races of erecting wooden abodes in lakes and marshes, and that some of the Swiss lake villages were occupied as late as the Roman period, and that frequent references have been made in the Irish annals to stockaded islands, and that a similar custom is found to be still prevalent among some of the ruder races of mankind in various parts of the globe—it is somewhat remarkable that the investigation of these rich repositories of the remains of prehistoric man should have been so long overlooked.

To the late Sir W. R. Wilde we are indebted for the first systematic examination of any of the Irish crannogs. This was as early as 1839, and consequently preceded the discovery of the Swiss lake-dwellings by fifteen years.

The first examined was that of Lagore, in county Meath, full particulars of which are given in the first volume of the Proceedings of the Royal Irish Academy. After this other crannogs were discovered in rapid succession, and it soon became apparent that they existed very generally over the county. When Sir W. R. Wilde published his Catalogue of the Museum of the Royal Irish Academy in 1857, he states that no less than forty-six were known, and adds that he had no doubt that many others would be exposed to view as the drainage of the country advanced, a statement which has been amply verified because every succeeding year has seen an increase to their number.

According to this author crannogs "were not, strictly speaking, artificial islands, but cluans, small islets or shallows of clay or marl in those lakes which were probably dry in summer time,

but submerged in winter. These were enlarged and fortified by piles of oaken timber, and in some cases by stonework. A few were approached by moles or causeways, but, generally speaking, they were completely insulated and only accessible by boat; and it is notable that in almost every instance an ancient canoe was discovered in connection with the crannog. Being thus insulated they afforded secure places of retreat from the attacks of enemies, or were the fastnesses of predatory chiefs or robbers, to which might be conveyed the booty of a marauding excursion, or the product of a cattle raid."

A more recent explorer of Irish crannogs, Mr. W. F. Wakeman, thus writes:—"The Irish crannog, great or small, was simply an island, either altogether or in part artificial, strongly staked with piles of oak, pine, yew, alder or other timber, encompassed by rows of palisading (the bases of which now usually remain), behind which the occupier of the hold might defend themselves with advantage against assailants. Within the enclosure were usually one or more log houses, which no doubt afforded shelter to the dwellers during the night time or whenever the state of the weather necessitated a retreat under cover."

As indications of the social economy and industries of the occupiers of these crannogs were found a vast collection of articles made of stone, bone, wood, bronze, and iron; and within the last few years, according to Mr. Wakeman, many fragments of pottery of a similar character to the fictile ware used for mortuary purposes in the prehistoric and pagan period have also been found in some of them.

Soon after the discovery of the Irish crannogs, the attention of archæologists was directed to remains of lake-dwellings in Switzerland. It appears that during the winter of 1853-4 the inhabitants of Ober Meilen, near Zurich, took advantage of the low state of water in the lake to recover portions of the land, which they enclosed with walls, and filled in the space with mud. When the workmen began to excavate, they came upon heads of wooden piles, stone celts, stags' horns, and various kinds of implements. The late Dr. Ferdinand Keller, President of the Antiquarian Society at Zurich, hearing of the discovery, took up the matter with much energy, and after careful investigation of the remains at Ober Meilen, came to the conclusion that the piles had supported a platform, that on this platform huts had been erected, and that, after being inhabited for many centuries, the whole wooden structure had been destroyed by fire.

The discovery at Zurich was almost immediately followed by the discovery of similar structures in the other Swiss lakes. Owing to the vast system of drainage carried on since, there has been a great increase to their number, so that, at the present

time, it is well ascertained that there was scarcely a sheltered bay in any of the lakes of Switzerland and Central Europe, but contained a lake village. The most common plan adopted by the constructors of these ancient dwellings was to drive numerous piles of wood, sharpened sometimes by fire, sometimes by stone celts, or, in later times, by metal tools, into the mud near the shore of a lake; cross-beams were then laid over the tops of these piles and fastened to them either by mortises or pins of wood, so as to form a platform. In certain cases the interstices between the upright piles were filled with large stones, so as to keep them firmer.

Other erections were made by layers of sticks laid horizontally, one above the other, till they projected above the surface of the water, and thus presented a somewhat solid foundation for the platform. Upright piles here and there penetrated the mass, but rather served the purpose of keeping it together than of giving any support to the platform. These are called fascine-dwellings, and occur chiefly in the smaller lakes, and belong, for the most part, to the stone age.

The regular pile-buildings are far more numerous than the fascine-dwellings, but, notwithstanding the simplicity of the structure of the latter, they do not appear to be older than the former, and it is a matter of observation that the civilisation of the fascine-dwellers corresponds with that of the inhabitants of other settlements of the stone age—in fact, no difference has been observed between the earliest and the latest dwellings, except that the latter, as the result of improved tools, were constructed in deeper water.

From the remains found on the sites of these lacustrine villages, it is inferred that their occupiers were acquainted with agriculture, and grew wheat and barley; that they had domesticated animals, such as cats, dogs, pigs, oxen, horses, sheep, and goats; that they used as food, besides the flesh of domesticated and wild animals, fish, milk, corn-meal boiled or baked, hazelnuts, plums, apples, pears, sloes, blackberries, and raspberries; that they were acquainted with the principles of social government and the division of labour; that they made urns and culinary vessels from coarse pottery without a knowledge of the potter's wheel, as well as a variety of implements, weapons, and ornaments, of stone, bone, horn, wood, bronze, and iron; and that they manufactured cloth and ropes from bast and flax by means of looms, and the distaff and spindle. Their clothing consisted of skins of animals sometimes prepared into leather, as well as cloth plaited or woven from flax. Of the kind of huts or buildings erected over the platforms, little is known owing to their complete decay from exposure to sun and rain. They

appear to have been rectangular in shape, and formed of wattle or hurdle-work of small branches, woven between the upright piles and plastered over with clay. Each had a hearth formed of two or three large slabs overlying a bed of clay.

The earliest founders of these dwellings were, according to Keller, a branch of the Celtic population, who came into Europe as a pastoral people, bringing with them from the east the most important domestic animals. The absence of winter corn and hemp, of most of the culinary vegetables, as well as of the domestic fowl, which was unknown to the Greeks till about the time of Pericles, points to the period of their occupancy as a long way antecedent to the Christian era.

It was not till after these discoveries on the Continent had attracted universal attention that archæologists began to look for similar remains in Britain. It was then found that early historic references to island forts, and some incidental notices of the exposure of buried islands artificially constructed of wood and stone, and other remains of lacustrine abodes, during the drainage of lochs and marshes in the last and early part of this century, had been entirely overlooked. The merit of correctly interpreting these remains in Scotland, and bringing them systematically before antiquaries, belongs to the late Joseph Robertson, Esq., F.S.A. Scot., who read a paper on the subject to the Society of Antiquaries of Scotland on the 14th December, 1857, entitled, "Notices of the Isle of the Loch of Banchory, the Isle of Loch Cannor, and other Scottish examples of the artificial or stockaded islands, called crannoges in Ireland, and Keltischen Pfahlbauten in Switzerland."

Mr. Robertson's paper, though not published, at once attracted attention, and stimulated so much further inquiry on the part of the members, that, at the very next meeting of the Society, another contribution on the subject was read by Mr. John Mackinlay, F.S.A. Scot., from which it appeared that as early as 1812 this gentleman had observed some remains (now surmised to be a crannog) in Dhu Loch, in the island of Bute, which were described in a letter dated the 13th February, 1813. This communication found its way to George Chalmers, Esq., author of "*Caledonia*," regarding which, writing on the 26th April, 1813, he says: "It goes directly to illustrate some of the obscurest antiquities of Scotland. I mean the wooden castles, which belong to the Scottish period when stone and lime were not much used in building. I will make proper use of this discovery of Mr. Mackinlay." In 1863, Dr. John Gigor, of Nairn, described "two ancient lake-dwellings or crannoges in the Loch of the Clans, Nairnshire." The remains, however, were too imperfect to be of value in illustrating their structure, and

the only relics found were a portion of a small stone cup or lamp, two whetstones, an iron axehead, and some charcoal and bits of bone.

A more important discovery, made about the same time, was a group of artificial islands in Loch Dowalton, Wigtownshire, which were first described by his Grace the Duke of Northumberland (then Lord Lovaine) in a paper read at the Newcastle-upon-Tyne meeting of the British Association in 1863. About two years later Mr. John Stuart, Secretary to the Society of Antiquaries of Scotland, visited Dowalton, and, owing to a greater drainage of the loch having been made in the interval, was enabled to re-examine the Dowalton islands under more favourable circumstances. The result of his labours was an elaborate paper to the Society, in which he gave a detailed account of the structure and relics of these crannogs, and also took the opportunity of incorporating into his article all the facts he could glean, so as to afford a basis for comparing the Scottish examples with those in other countries.

Since the publication of Dr. Stuart's paper in 1866, little progress was made in the investigation of Scottish crannogs, though traces of them were occasionally noticed in various parts of Scotland, till the discovery and examination of the Lochlee Crannog, Ayrshire, in 1878-9. The work done at Lochlee is important, not only because of the careful plans and sections made of the structure of the island, and the varied collection of relics secured, but because of the interest it has excited in archaeological research, the fruit of which is already being reaped in the discovery of no less than five other lake-dwellings in the south-west of Scotland, all of which have now, as far as practicable, been carefully investigated. Full details of these investigations are given in the collections of the Ayrshire and Galloway Archæological Association, as well as in my recent work on the Scottish Lake-Dwellings.

South of the Scottish border the remains of lake-dwellings, though not so numerous as those recorded in Ireland and North Britain, are sufficiently important to claim a passing notice. As early as 1856 Sir Charles F. Bunbury described certain oak piles and cut portions of deer horns, evidently manipulated by human agency, which were discovered imbedded in the moss of a drained *mere* near Wretham Hall, Norfolk; and in 1866 General Pitt Rivers read a lengthy paper at the Anthropological Society, entitled, "A Description of Certain Piles found near London Wall and Southwark, possibly the remains of Pile-Buildings." Among the relics here collected were Samian and other pottery, bronze and iron implements, leather soles of shoes, and a variety of Roman coins. Other remains, supposed to

indicate the sites of former lacustrine abodes, are recorded as having been found in Llangorse Lake, South Wales, Barton Mere, near Bury St. Edmunds, &c., and quite recently in the Holderness district near Hull. (See "Ancient Scottish Lake-Dwellings," &c.).

While such general indications of lake-dwellings can hardly be said to limit their geographical distribution to any given area in Britain, it is a singular fact that, so far as the discovery of actual remains illustrative of the civilisation and social condition of their occupiers is concerned, we are almost entirely dependent on the investigation made at Dowalton, Lochlee, Lochspouls, Buston, Arricouland and Barhapple, all of which are within the counties of Ayr and Wigtown. In instituting a comparison between these groups their analogy, not only as regards the structure and local distribution of the islands, but as regards the general character of the relics, is so wonderfully alike that we have no difficulty in dispensing with the necessity of discussing the merits of each group separately; so that whatever inferences can be legitimately derived from a critical examination of any one group may be safely applied to the whole.

All the wooden islands hitherto examined in Scotland appear to have been built after an uniform plan, the main objects of which were to give stability to the island, to afford fixed points, *points d'appui*, on its surface, and to prevent the superincumbent pressure of whatever buildings were to be erected on it from causing the general mass to bulge outwards. Having fixed on a suitable locality—the topographical requirements of which seemed to be a small mossy lake, with its margin overgrown with reeds and grasses, and secluded amidst the thick meshes of the primeval forests—the next consideration was the selection of the materials for building the island. In a lake containing the soft and yielding sediment due to decomposed vegetable matter, it is manifest that any heavy substances, as stones and earth, would be totally inadmissible owing to their weight, so that solid logs of wood, provided there was an abundant supply at hand, would be the best and cheapest material that could be used. To construct in 10 or 12 feet of water, virtually floating over an unfathomable quagmire, a solid compact island, with a circular area of 100 feet or more in diameter, and capable of enduring for centuries as a retreat for men and animals, was no mean problem to contend with, even from the point of view of a skilful modern engineer, and yet the execution of this work in these early times is actually the outcome of the highest mechanical principles that the circumstances would admit of.

The general plan adopted was to construct an island of fascines, stems of trees and brushwood laid transversely, mingled

with stones and earth. This mass was pinned together towards the margin by a series of stockades which were firmly united by intertwining branches, or in the more elegantly constructed crannogs by horizontal beams with mortised holes to receive the uprights. These horizontal beams were arranged in two ways. Some lay along the circumference and bound together all the uprights in the semi-circle, while others took the radial position and connected each circle together. The external ends of these radial beams were occasionally observed to be continuous with additional strengthening materials, such as wooden props and large stones, which, in some cases, also appeared to act as a breakwater. Frequently a wooden gangway, probably submerged, stretched to the shore, by means of which secret access to the crannog could be obtained without the use of a canoe. These gangways were most ingeniously constructed, but there has been no evidence to show that the uprights supported a superaqueous platform.

The great value, however, of the investigations of the lake-dwellings in the south-west of Scotland depends on the quantity and variety of the remains of human industry discovered in and around their sites. It is from such fragmentary evidence as is supplied by food-refuse, stray ornaments, broken weapons, useless and worn-out implements, and such-like waifs and strays of human occupancy, that archaeologists attempt to reconstruct the outlines of the social life and organisation of the prehistoric past. To those who may wish to occupy themselves with this problem these explorations furnish a vast collection of objects made of stone, bone, horn, wood, bronze, iron and gold.

Among the stone objects are—querns, hammer-stones, whet-stones, so-called sling-stones, a few cup-marked stones (one surrounded by concentric circles), spindle-whorls, flint flakes and scrapers, a polished celt, a perforated axe-hammer head, portions of two polished circular discs, and an oval implement with two wrought hollowed surfaces.

Bones and the horns of deer were utilised in various ways and manufactured into pins, needles, bodkins, awls, picks, toilet-combs, knife handles, &c. The combs are neatly formed of three or four flat pieces kept in position by two transverse slips, one on each side, and rivetted together by iron rivets. They are ornamented by a series of incised circles, which are sometimes connected by a running scroll.

The wooden articles consist of bowls, ladles, a mallet, a hoe, clubs, &c., together with a variety of other objects apparently intended for agricultural purposes.

Implements and weapons of iron are numerous; amongst the former are gouges, chisels, knives, shears, saws, hatchets, awls,

hammers, a bridle bit (partly iron and partly bronze), the bolt of a padlock and other objects of unknown use. The weapons consist of leaf-shaped spearheads, both socketed and tanged, daggers and arrowheads resembling those of the crossbow bolt.

The objects made of bronze are mostly of an ornamental character, comprising:—harp-shaped fibulæ, one circular and one penannular brooch, finger rings, a doubly spiral ornament, ornamented pins, one with a ring top, and another with a glass setting, a small key, and some other articles of an indeterminate character. From Dowalton there are basins or caldrons of beaten bronze, and some clouted and rivetted, one of which, presumably of a Roman saucepan, has the name of the maker on the handle.

On the Buston crannog were found too handsome and massive spiral finger-rings made of gold. One is plain with five-and-a-half twists; the other, besides an additional twist, has both ends ornamented by a series of circular grooves. From the same place there is a curious gold coin, supposed by Mr. Evans to be of Saxon origin, and a forgery of the sixth or seventh century.

Pottery is represented by numerous fragments, some of which are of so-called Samian ware, but the most of them are of vessels of a glazed ware while a few are of an archaic type. Several neatly formed crucibles, containing traces of slag, are also in the collection.

Among miscellaneous objects are trinkets made of variegated glass or vitreous paste, such as bracelets and beads; also some jet ornaments, one of which is a handsome pendant in the form of an equal-armed cross, inscribed in a circle, and having one surface ornamented by a series of incised circles which contain the remains of a yellow enamel. Dr. Joseph Anderson considers this a Christian relic of a very early type. A smooth and flat piece of ash wood, with peculiar spiral carvings on both sides, and a fringe-like apparatus made of the long stems of a moss, are among the objects which have excited the greatest curiosity. Regarding a finely polished conical object made of rock crystal found at Lochspouts, a reviewer in the "Academy," October 14th, writes: "Is it a charm, or can it have formed the centre knob or boss in the binding of some richly decorated breviary or gospel book? Crystals very similar, but oblong in form—like a Brazil nut—may be seen in some of the rich covers of books of early date, and a few that have been detached are preserved in collections. One such object forms part of a crystal necklace in the Ashmolean Museum, and another in private hands was employed, not so very many years ago, in the West Riding of Yorkshire, for the purpose of seeing spirits. If this relic be, indeed, a book-boss, it makes it probable that

the crannog was at one time inhabited, or at least visited, by Christian missionaries." Dr. Joseph Anderson has also pointed out that this object is extremely like a "large circular rock crystal which forms the central ornament on the inferior surface of the foot of the famous silver chalice, dug up at the Rath of Reerosta, near Ardagh, county Limerick, Ireland, 1868, and now in the Museum of the Royal Irish Academy, Dublin. According to the Earl of Dunraven, this most beautiful example of our ancient art was executed either in the ninth and tenth century." (See "*Proceedings Soc. Antiq. Scot.*," December 4th, 1882.)

Let us now look at the remarkable series of implements, weapons, ornaments, and nondescript objects here presented to us, with the view of abstracting from them some scraps of information regarding their original owners. The fragments of Samian ware, bronze dishes, harp-shaped fibulæ, and the large assortment of beads, bronze and bone pins, bone combs, jet ornaments, &c., are so similar to the class of remains found on the excavated sites of Romano-British towns, that there can hardly be any doubt that Roman civilisation had come in contact with the lake-dwellers. The Celtic element is, however, strongly developed, not only in the general character of many of the industrial implements of stone, bone, and iron, but also in the style of art manifested in some of the ornamental objects included in the collection. Thus the piece of ash wood with its carved spiral patterns, the combs, especially the one showing a series of concentric circles connected by a running scroll design, the table-man, from the Loch of Forfar, carved with similar circles and an open interlaced knot-work, and some of the bronze brooches and ornaments, present a style of ornamentation which is considered peculiar to Celtic art. The spiral finger-rings seem also to have been of native origin, and the probability is that they were manufactured where they were found, as several crucibles are amongst the relics from the same lake-dwelling, one of which, from the fact that it still contains particles of gold, proves that it had been used in melting this metal.

On the other hand, the forged gold coin is the only relic that can with certainty be said to have emanated from a Saxon source—at least, that cannot otherwise be accounted for.

But if from internal evidence a presumptive case is made out in favour of the Celtic origin and occupation of these lake-dwellings, it is greatly strengthened when we consider that the neighbouring Celtic races in Scotland and Ireland were in the habit of erecting similar island abodes, while there is not a particle of evidence in favour of the idea that such structures

originated with the Roman conquerors of Britain, or its Saxon invaders.

The resemblance between the remains found in the Scottish and Irish lake-dwellings, as well as other antiquarian finds of Celtic character, must also not be overlooked. Combs, similar in structure and ornamentation to those from Buston, have been found in several of the Irish crannogs, in the brochs and other antiquities of the north of Scotland, and in many of the ruins of the Romano-British towns in England. Iron knives and shears, variegated beads of impure glass with grooves and spiral marks, and ornaments of jet and bronze, implements of stone, bone, and horn, besides querns, whetstones, &c., are all common to Celtic antiquities wherever found.

Canoes are so invariably found associated with crannogs, that their discovery in lakes and bogs has been considered by Dr. Stuart as an indication of the existence of the latter. This may be true in some cases, but in others, such as Closeburn, Lochwinnoch, and Loch Doon, three of the examples cited by him, it is more probable that the canoes were used by the occupiers of the mediæval castles in the vicinity of which they were found. From these and other instances that have come under my notice I have come to the conclusion that dug-out canoes do not indicate such great antiquity as is commonly attributed to them nor do they therefore necessarily carry us back to prehistoric times.

While some fragments of the pottery collected on the Ayrshire crannogs (all of which include Samian ware) are undoubtedly Romano-British, others as certainly point to a different period and source. I am informed on good authority that all the portions showing remains of glaze were manufactured in mediæval times, but on the other hand that some others might belong to the same class of fictile ware as was used for mortuary purposes in pagan times.

From the respective reports of Professors Owen, Rolleston, and Cleland, on a selection of osseous remains taken from the lake-dwellings at Dowalton, Lochlee, and Buston, we can form a fair idea of the food of the occupiers. The Celtic short-horn ox, the so-called goat-horned sheep, and a domestic breed of pigs were largely consumed. The horse was only scantily used. The number of bones and horns of the red-deer and roebuck showed that venison was by no means a rare addition to the list of their dietary. Among birds, only the goose has been identified, but this is no criterion of the extent of their encroachment on the feathered tribe, as only the larger bones were collected and reported on. To this bill of fare the occupiers of Lochspouts crannog, being comparatively near the sea,

added several kinds of shell-fish. In all the lake-dwellings that have come under my own observation the broken shells of hazel nuts were in profuse abundance.

From the number of querns, and the great preponderance of the bones of domestic over those of wild animals, it may be inferred that, for subsistence, they depended more on the cultivation of the soil and the rearing of cattle, sheep, and pigs, than on the produce of the chase.

Proofs of a prolonged but occasionally interrupted occupancy are also manifested by the great accumulation of *debris* over the wooden pavements, the size and contents of the kitchen-mid-dens, and the superimposed hearths.

That many of these relics were the products of a refined civilisation, is not more remarkable than the unexpected and strangely discordant circumstances in which they have been found. For this reason it might be supposed that the crannogs were the headquarters of thieves and robbers, where the proceeds of their marauding excursions among the surrounding Roman provincials were stored up. The inferences derived from a careful consideration of all the facts do not appear to me to support this view, nor do they uphold another view sometimes propounded, viz., that they were fortified islands occupied by the guardian soldiers of the people. Indeed, amongst the relics military remains are only fully represented by a few iron daggers and spearheads, one or two doubtful arrow-points, and a quantity of round pebbles and so-called sling-stones. On the other hand, a very large percentage of the articles consists of querns, hammer-stones, polishers, flintflakes, and scrapers; stone and clay spindle-whorls, pins, needles, bodkins, and knife-handles; bowls, ladles, and other domestic vessels of wood, some of which were turned on the lathe; knives, cans, saws, hammers, chisels, and gouges of iron; several crucibles, lumps of iron slag, and other remains of the metallurgic art. From all these, not to mention the great variety of ornaments, there can be no ambiguity as to the testimony they afford of the peaceful prosecution of various arts and industries by the lake-dwellers.

There is, in my opinion, only one hypothesis that can satisfactorily account for all the facts and phenomena here adduced, viz., that the lake-dwellings in the south-west of Scotland were constructed by the Celtic inhabitants as a means of protecting their lives and movable property when upon the frequent withdrawal of the Roman soldiers from the district they were left, single-handed, to contend against the Angles on the east, and the Picts and Scots on the north. It is not likely that these rich provincials, so long accustomed to the luxury and comforts of Roman civilisation, or their descendants in the sub-

sequent kingdom of Strathclyde, would become the assailants of such fierce and lawless enemies, from whom, even if conquered, they could derive no benefit. Hence their military tactics and operations would assume more the character of defence than aggression, and in order to defeat the object of the frequent and sudden inroads of the northern tribes, which was to plunder the inhabitants rather than to conquer the country, experience taught them the necessity of being prepared for emergencies by having certain places of more than ordinary security where they could deposit their wealth, or to which they could retire as a last resource when hard pressed. These retreats might be caves, fortified camps, or inaccessible islands, but in localities where no such natural strongholds existed the military genius of the Celtic inhabitants, prompted perhaps by inherited notions, led them to construct these wooden islands. Since the final departure of the Romans till the conquest of the kingdom of Strathclyde by the Northumbrian Angles, a period of several centuries, this unfortunate people had few intervals of peace, and with their complete subjugation ended the special function of the lake-dwellings as a national system of protection. No doubt some of them, as well as caves and such hiding-places, would continue to afford refuge to straggling remnants of natives rendered desperate by the relentless persecution of their enemies, but ultimately all of them would fall into the hands of their Saxon conquerors when henceforth they would be allowed to subside into mud, or crumble into decay. If the number and localisation of the sites of Scottish lake-dwellings, as known up to the present time, be taken as a fair representation of their former geographical distribution, we must limit their area to those districts in possession of the Celtic people during or immediately after the Roman occupation of Scotland. Thus, adopting Skene's division of the four kingdoms into which Scotland was ultimately divided by the contending nationalities of Picts, Scots, Angles, and Strathclyde Britons, after the final withdrawal of the Romans, we see that of the crannogs proper none have been found within the territories of the Angles; ten and six are respectively within the confines of the Picts and Scots; while no less than twenty-nine are situated in the Scottish portion of the ancient kingdom of Strathclyde. That they have not been found in the south-eastern provinces of Scotland may suggest the theory that these districts had been occupied by the Angles before Celtic civilisation gave birth to the island dwellings. But whatever may have been the exigencies, whether social or military, that led to the development of the crannogs in the south-west of Scotland, there can be no doubt that none of their remains hitherto brought to light

give any countenance to the presumption of a pre-Roman occupation.

A reviewer in the *Pall Mall Gazette* takes exception to this opinion on the grounds that amongst the relics are a polished stone celt of neolithic type, flint scrapers which, he says, "may be of the bronze age, but could hardly be considered as post-Roman," and portions of the antlers of the reindeer which, according to him, "can hardly have ranged so far south at any period later than the neolithic age." Whatever explanation may be forthcoming as to the prevalence of such relics in these crannogs, there is no possibility of denying that all of them hitherto examined in this locality were constructed during the iron age. Not only have iron implements and weapons, including hatchets, chisels, gouges, and a cross-cut saw, been found associated with Roman remains, as well as a few of the still older types of relics, but in one instance an Anglo-Saxon coin of the sixth or seventh century. Moreover, the very lowest of the logs of which the Lochlee crannog was constructed bore unmistakable evidence of having been manipulated with sharp metal tools. The entire absence of cutting instruments of bronze renders it more than probable that those tools were made of iron, and were similar to those so abundantly found on the crannog. Had my reviewer read the remarks in my book at page 116, regarding this polished greenstone hatchet, he would hardly have selected it to prove that the Lochlee crannogs existed during the neolithic age. My words are: "As many of the relics, if judged independently of the rest and their surroundings, would be taken as good representatives of the three so-called ages of Stone, Bronze, and Iron, it is but natural for the reader to inquire if superposition has defined them by a corresponding relationship. On this point I offer no dubious opinion. The polished stone celt, Fig. 55 (that referred to by my reviewer), and the (iron) knife, Fig. 129, were found almost in juxtaposition about the level of the lowest fireplace." As for the conclusions educed from the horns of the reindeer (hesitatingly identified by the late Professor Rolleston), it is now actually proved that this animal was not extinct in Scotland before the twelfth century. In the "Orkneyinga Saga" it is stated that "every summer the Earls were wont to go over to Caithness, and up into the forests, to hunt the red-deer or the reindeer." The recent discovery of its bones and horns in refuse heaps in Caithness, and in many of the brochs in the north of Scotland, amply proves that the reindeer was hunted and eaten by the Norsemen as late as the above date.

Turning now to the Celtic area beyond the limits of the Scottish portion of the kingdom of Strathclyde, we find no data,

either from an examination of its artificial islands or any relics of their occupiers, which can give even an approximate idea of their chronological range.

In localities where the Celtic races were not supplanted by foreigners, it would be strange indeed, and altogether at variance with archæological experience, if the habit of resorting to isolated and inaccessible islands for safety would be all at once abandoned whenever the greater security afforded by stone buildings became known. Hence, in the Irish annals, we find frequent mention made of crannogs down even to the middle of the seventeenth century, and Dr. Robertson has quoted several historical passages to prove that certain crannogs in Scotland—for example, those of the Loch of Forfar, Lochindorb, Loch Canmor, and Loch-an-eilan survived to the middle ages. Many of these, however, were strong mediæval castles, which had nothing in common with the crannogs proper beyond the fact of their insular situation.

From an etymological analysis of the earliest topographical nomenclature of Britain, it is inferred that in former times the whole island was nearly occupied by a Celtic population which was ultimately driven, by successive waves of immigrants, to the far north and west. Hence it becomes an important inquiry to determine if, in those localities from which the Celts were expelled, there still exist any traces of lake-dwellings. That they have not been found in the south-eastern provinces of Scotland may be due to the rarity of suitable lakes, or to the want of careful research on the part of antiquaries.

Taking into account the recent discovery of lacustrine dwellings in the Holderness district, and the few previous records by trustworthy observers of the existence of similar remains in England and Wales, together with the distinct statement made by Julius Cæsar that the Britons were in the habit of making use of wooden piles and marshes in their mode of entrenchment, I am inclined to believe that such remains are not merely solitary instances, but the outlines, as it were, of a widely distributed custom which prevailed in the southern parts of Britain at an earlier period than that assigned to the crannogs of the south-west of Scotland. Hence I have been led to suggest, as a tentative theory, that the original British Celts or Gaels were an offshoot of the founders of the Swiss lake-dwellings who emigrated to Britain when these lacustrine abodes were in full vogue and retained a knowledge of this custom long after it had fallen into desuetude in Europe. On this hypothesis it would follow that subsequent immigrants into Britain, such as the Belgæ, Angles, &c., being no longer acquainted with the subject, would cultivate new or perhaps improved principles of defensive warfare; whilst the first Celtic invaders, still retaining their primary

notions of civilisation, when harassed by enemies and obliged to act on the defensive, would naturally have recourse to their inherited system of protection, with such variations and improvements as better implements and the topographical requirements of the country suggested to them. It is as defenders, not as conquerors, that the Celts constructed their lake-dwellings.

This hypothesis has elicited a considerable diversity of opinion from a few of my critics. In the *Times* of October 4th, 1882, it is thus referred to: "The weakest part of Dr. Munro's volume is that in which he endeavours to prove a connection between the Celts of Britain and the builders of the Swiss lake-dwellings. This is pure theory, and is quite unnecessary to account for the facts; as well might one argue a connection between the pile-dwellers of New Guinea and Central Africa and those of the Swiss lakes." Sir John Lubbock also (*Nature*, December 24th, 1882) confesses that he is disposed to doubt that there is any connection between the geographical distribution of Scottish lake-dwellings at present known and that of the ancient Celts. On the other hand, another reviewer (in the *Scotsman* of November 22nd, 1882, who, in my opinion, displays a most thorough and critical knowledge of the whole subject of lake-dwellings) attempts to defend my conjectures by the following arguments:—"This is not a hypothesis which is altogether destitute of indications to support it. The Swiss lake-dwellers, according to Keller, were a branch of the Celtic people. Their regular pile villages did not resemble the crannogs of Scotland and Ireland, but their fascine-dwellings were constructed precisely in the same manner and on the same principles as the crannogs. Like these they chiefly occur in the smaller lakes, but unlike them they belong entirely to the stone age. In the Swiss lake-dwellings of the iron age, however, there are indications, especially in the ornamentation of the sword-sheaths and other articles, of a style of art which closely corresponds to the style of decoration prevalent in the crannogs of Scotland and Ireland. Such indications as these are, perhaps, too feeble to be taken as evidence; but, so far as they go, they give some countenance to the hypothesis which Dr. Munro enunciated."

Perhaps this is all that can at present be fairly urged in support of the hypothesis from a comparison of the relics. There are, however, some collateral circumstances involved in its consideration that seem to me to require more careful attention and extended research on the part of archæologists before the problem can be finally disposed of. Thus, for example, the geographical distribution of lake-dwellings, so far as they are known in Europe, very nearly corresponds with the area formerly occupied by the Aryan or Indo-European people, commonly called Celts, in their

several westward waves of emigration. Hitherto no lacustrine habitations have been discovered in Europe north of France and South Germany, nor on the other hand in the Siberian Peninsula. Of course in districts where there were no natural lakes it could not be expected that lake-dwellings would be found, and hence the inhabitants, of such localities must have had recourse to some other means of defensive warfare. I have already suggested that such topographical considerations may partly account for the marked disparity in the lake-dwellings in the eastern and western districts of the south of Scotland. Their entire absence, however, from the northern and southern regions of Europe, can hardly be accounted for by a deficiency in their topographical and hydrographical requirements for such structures. This singular coincidence of such a well-defined class of antiquities as the lake-dwellings with the ethnographical range of the people supposed, on outside evidence, to be their founders, is a striking contrast to the break-down of the theory which formerly assigned to the same people another localised group of European antiquities, viz., the dolmens and other megalithic monuments. As regards these monuments their geographical distribution is the strongest argument against their Celtic origin, because, instead of coinciding with, it actually crosses, the Celtic area at right angles, and includes North Germany, Scandinavia, Holland, France, the British Isles, Spain and Portugal, together with an extensive region in North Africa.

As to a supposed difference in structure I need only refer to the structural details of the fascine-dwelling in the lake of Fuschl, near the Mondsee, Austria, as a sufficient proof of the exact resemblance between it and the Scottish and Irish crannogs. It is true that the pile-dwellings were more numerous on the continent than the fascine structures, while the reverse was the case in Scotland and Ireland—if indeed the former can be said to have existed at all in these countries. That the pile system was, however, known to the crannog builders, and occasionally acted upon, we are not devoid of some positive evidence. Mr. G. H. Kinahan, M.R.I.A., says that a few of the Irish crannogs were built on piles (Keller's "Lake-Dwellings," p. 654, 2nd Ed.) and instances an example in Loch Cimbe (now Loch Hackett), county Galway, which was so frequently blown down that the occupiers were obliged to convert it into an island, which they did by adding boat-loads of stones to its site. On the 30th August, 1882, I examined two lake-dwellings in Lough Mourne, Ireland, which shortly before became exposed owing to its partial drainage while converting its basin into a reservoir as a water supply for the town of Belfast. One of these I concluded to have been a pile-dwelling. The piles were closely set, about 1 to 1½ foot apart,

and occupied the whole area of the dwelling, covering a space of about 50 yards in diameter. A thin layer of burnt faggots and charcoal, but no fascines of any kind, were found among the stumps of the decayed piles, and only a few inches below the sand and mud. In two spots, near the centre, there were some stones and clay mixed with ashes and flint chips, as if they had been fireplaces. The superstructure had evidently been burnt down, and the clay and stones which served as the fireplaces had consequently dropped to the bottom of the lake without much transposition of their relative positions. Two lines of piles, as if intended for a gangway, extended to the shore. Some of the examples of lake-dwellings recorded in England would appear also to have been pile structures.

If, therefore, both principles were known among the crannog builders of the British Isles, why, it may be asked, did they give a preference to the fascine structures? I have already remarked that these structures on the Continent were always found in small mossy lakes, which, owing to the yielding nature of the peaty deposits, were unsuitable for the support of platforms bearing huts and other superstructures. In such conditions the artificial island supplied more readily, and perhaps with less labour, the requisite stability, especially when the dimensions of the platform were small and sparsely placed.

The comparatively late occupancy of the Scottish and Irish crannogs is also supposed to militate against the supposition of there being any ancestral connection between their founders and those of their analogues in Central Europe. But this chronological gap is more apparent than real. Not only were there many lake-dwellings in Switzerland belonging to the iron age, but, in several instances, Roman remains were associated with them. Among the antiquities collected on the site of the pile-dwellings, at Paladru, near Voiron, France, were horse-shoes, currycombs, axeheads, spurs, keys, spear-heads, &c., all made of iron, as well as many other objects of wood, bone, and pottery, which, in the opinion of M. de Mortillet and other archaeologists, could not be accounted for as the products of any civilisation prior to Carlovingian times.

Taking all the circumstances into consideration, I repeat that we are justified in ascribing the remains of lake-dwellings, so far as they are at present known within the British Isles, to a Celtic source; and if Dr. Keller is right in assigning those of Central Europe to a branch of the same people, I see no *primâ facie* improbability, so far as their distribution either in space or time is concerned, against the hypothesis which I have here ventured to formulate.

DISCUSSION.

Mr. GEORGE M. ATKINSON desired to remind Dr. Munro that all crannogs were not artificially formed islands. At the top of the Bay of Ardmore, in the south of Ireland, owing to geological changes, in the summer of 1878, the piled remains of a circular crannog in the bed were uncovered. It is about 100 feet in diameter, and consists of two approximately concentric rows of piles about 13 feet apart, on which we may presume the platforms and huts of the inhabitants were formerly erected, the central part being a kind of little harbour agreeing exactly with the descriptions of the dwellings of the Nicobar and other Polynesian Islanders. This crannog has been described by Mr. R. J. Ussher in the *Proceedings of the Royal Irish Academy* for December, 1880, but the speaker's observation did not coincide with the conclusions of this writer. Mr. Atkinson did not think Dr. Munro could support any theory of races from these structures, which appeared to have rather the result of the expediency of existence. They are not found further north in Europe than some lakes in Mecklinburg Schwerin, the ice of winter rendering their utility valueless.

Mr. A. L. LEWIS said, if the erection of the crannogs were so late as the author appeared to think, there could hardly have been any direct connection between their builders and those of the Swiss lake-dwellings. From the account given of the remains found in the crannogs he was disposed to attribute their first erection to a much earlier period, although they might have been occupied up to a comparatively late date, and in that case there might have been some sort of connection between the first builders in Switzerland and in Britain. The similar use of sites and materials under similar circumstances was, however, no proof of unity of origin unless it were carried into details unlikely to occur to different minds except from a common influence; this remark applied also to the megalithic monuments, which, however, so far as they existed in countries now or formerly Celtic, he believed to have been erected for the most part, by the Celtic populations. Some of the piles found in London Wall rested on heaps of Roman pottery, and Mr. Lewis therefore thought it more likely that they had supported some mediæval structure than that they had formed part of a post-Roman lake-dwelling.

Mr. RUDLER called attention to the fact that by far the larger number of the lacustrine habitations discovered in Ireland occur in the province of Ulster, and therefore not far from the south-western part of Scotland, which has yielded the crannogs described by Dr. Munro. According to Colonel Wood-Martin, out of a total of 221 sites of lake-dwellings known in Ireland, 124 occur in Ulster. This fact in the geographical distribution of crannogs is not without significance in discussing the ethnical relations of their builders.

The following paper was read by the author :—

On THREE STONE CIRCLES in CUMBERLAND, with some further observations on the RELATION of STONE CIRCLES to ADJACENT HILLS and OUTLYING STONES. By A. L. LEWIS, F.C.A., M.A.I.

[WITH PLATE XX.]

ABOUT four years ago I had the honour of reading a paper before this Institute on the "Relation of Stone Circles to Outlying Stones or Neighbouring Hills," which was printed in the *Journal* for November, 1882. In that paper I showed, from an examination of eighteen stone circles in England and Wales, and the bearing from them either of single stones or of other circles, or of prominent hills, that there was in that particular a very marked preponderance of relation or reference to the north-east (the quarter in which the sun rises in this country at midsummer); the quarters which took the second and third places, though at a considerable distance, being the south-east and south-west; so that we may take the line south-west to north-east as being specially characteristic of circles, in opposition to the line north-west to south-east, which is most usual in stone chambers and similar purely sepulchral monuments.

Since that paper was published I have visited three well-known circles in Cumberland, and as what I have observed in connection with them, although not precisely what I expected, is even more remarkable than I had anticipated, I propose in the first place to describe those circles and their surroundings to you as briefly as I can, then to group the results obtained from them with those stated in my former paper, and, in conclusion, to make some general observations on the subject.

The largest circle in Cumberland is "Long Meg and her Daughters," about seven miles north-east from Penrith. It consists of about seventy stones of various sizes, of which only twenty-seven are now erect, forming a rather irregular oval, 305 feet from north to south, and 360 feet from east to west, having a clearly marked special entrance to the south-west, indicated by two stones placed outside the others, one on each side of the entrance; this entrance leads directly to the largest stone of the group, "Long Meg" itself, which is 13 feet high, and stands as nearly as possible due south-west from the centre of the ring, about 250 feet from that point, and 80 from the circumference. Although the entrance and outlying stone, which are the most remarkable features of this circle, stand to the south-west, instead of the north-east, they are in the same general line, south-west to north-east, of which I have previously spoken, and there is, I

think, great reason to believe that a stone or stones formerly stood not exactly north-east from the centre of the circle, but about 60 degrees, or two-thirds of the way, north from east. About 1,100 feet from the centre of the circle in this direction I noticed a peculiar projecting angle in a fence which appears to have been run out to that point as though some landmark had formerly stood there, and, at this angle, at the foot of the hedge, was a loose stone, about 3 feet by 2 by 1, while another smaller but considerable fragment was built into a fence close by.

After I had written the sentences I have just read, I was placed in communication with Mr. Jared Turnbull, schoolmaster, of Maughanby, who has kindly made inquiries amongst the oldest inhabitants, and has found two old men who remember the small stone at the angle I have just mentioned from their boyhood, so that it is not a recent deposit. One of these men also remembers a small standing stone close by. Mr. Turnbull has since found other stones close by this spot, some broken and some buried, but whether *in situ* or not is uncertain. These may have formed part of a "circle of twenty stones 50 feet diameter, and at some distance above it a single stone regarding it as Long Meg does her circle," of which Stukeley speaks, but in a manner which would lead to the belief that it was further away from Long Meg; whether, however, it was a circle (and Mr. Turnbull thinks that the one mentioned by Stukeley must have been close by) or whether it were only one or more stones that stood there, the north-easterly position in reference to Long Meg would be the same, and I therefore register Long Meg as showing certain references to the south-west and north-east. I have taken you at some length through the various steps by which I have been able first to suspect, and then to establish, the former existence of these stones, because I think there can be no better proof of the persistence of the north-easterly reference in the circles than that a belief in it should have enabled me to restore the memory of these stones, all knowledge of which would otherwise perhaps have been lost.¹

There may, however, possibly have been another north-easterly reference at Long Meg; 27 degrees north of east, and 638 yards from the centre of that circle (according to Mr. Dymond's measurement), are eleven stones of good size, close to each other, and forming in their present position a sort of horse-shoe, surrounding

¹ Camden says of Long Meg (1557): "Inside the circle are two heaps of stones under which they say the bodies of the slain were buried." These heaps had nearly disappeared in Stukeley's time (1750), and no traces of them are to be found now. It is not unlikely that interments may have been made inside the ring; but I do not for a moment believe that sepulture was its principal object.

a hole which formerly contained a cist. Up to about twenty years ago these stones were almost covered with earth and cobble stones, which were then removed to be put on the surrounding field, the cist being uncovered and destroyed. The Rev. J. Simpson, in describing its discovery to the Society of Antiquaries, in January, 1866, stated that an urn of very coarse material and not ornamented, which fell to pieces, was found in the cist, and was full of burnt bones and charcoal, that the cist also was full of black earth different from that outside, but that nothing else was found. An observation which bears more particularly on the point I have in view I give in his own words: "As most of the large stones forming the circle were covered with earth, and all of them partly so, it is not too much to infer that the circle of stones may first have existed, that the cist was formed and the urn containing burnt bones and charcoal deposited therein, and the cairn over them formed at a later period than when the stones were first placed in the circle." If this were so we should have this little circle about 18 feet in diameter (some of the stones of which, however, would have been 6 feet high), standing 27 degrees north of east from Long Meg, and possibly forming with it and the other circle mentioned by Stukeley, the remains and approximate site of which I have already spoken of, a system of circles somewhat resembling those at Stanton Drew, in Somersetshire, in character, though differing from them considerably in details of arrangement. A circumstance which makes it more probable that this little circle was, as Mr. Simpson suggests, originally uncovered, is that on the stone nearest the north-east are the faint remains of a concentric marking and a spiral marking which would have been less likely to have been cut on a stone which was intended to be buried than on one which was intended to be exposed. There are also concentric markings on "Long Meg" herself. Another point is that, if this circle were originally uncovered and were at a later period thrown down and covered up to form a tomb, its original construction must have been very early, since the interment itself was not of a very late type.¹

The next circle which I have to draw your attention to is a mile and a half east from Keswick. It is known as the "Druids' Temple," and consists at the present time of forty-eight stones; it is about 105 feet in diameter from north to south, by 95 feet from east to west, and it occupies the grandest position in which I have ever seen a circle placed. Standing in the

¹ Mr. Simpson also says: "In an adjoining field nearer to Long Meg there appears to have been another stone circle, but I could not learn whether there had been a cairn, and if so when and by whom it was removed." This was probably Stukeley's circle already mentioned.

centre, and looking northward through what seems to have been the entrance, the visitor sees a gap or valley flanked by Skiddaw on the north-west and by Blencathra on the north-east; these gigantic sentinels being only from three to four miles away, and rising about 2,000 feet above the level of the circle, not only without any intervening hills to dwarf their height, but with an intervening valley to increase it, are by far the most striking objects in the surrounding landscape; their summits are not exactly north-east and north-west from the centre of the circle, but about ten degrees north of those points. Had the circle been placed further north so as to bring those summits to true north-east and north-west it would have stood upon much lower ground, and the view from it in other directions would have been spoiled; still it stands so symmetrically in relation to those two hills that it can hardly be doubted that its builders selected the site with special reference to them. There is, moreover, a stone (7 or 8 feet long by 4 wide) lying prostrate in a lane perhaps 100 feet north-west from the circle: this stone has not, so far as I know, been noticed by any one else, but it no doubt formerly stood erect either at true north-west or in line with the summit of Skiddaw a little north of true north-west. There was most likely a similar stone to the north-east, but I could find no traces of it, so suppose that if it ever existed it has been buried or broken up. The summit to the north-east, Blencathra, it must be remarked, presents a triple peak as seen from the circle; while that to the north-west, Skiddaw, presents only a single peak. The hills in other directions, though inexpressibly beautiful, exhibit no such striking features as those already noticed; they are either lower, or further off and masked by intervening but smaller masses, and often hidden by clouds and mist. The highest stone in the circle ($7\frac{1}{2}$ feet high) stands about as much north from south-east from the centre as Blencathra is north from north-east, and, looking over it, the eye rests upon a summit. There is also a notable summit about true west, one about ten degrees north of east, and another about seven miles due south; but the others, which are many, do not stand at any leading point of the compass. I register this circle, therefore, as exhibiting a special reference to the north-east, north, north-west, and south-east certain, and east, south, and west doubtful. (Plate XX, fig. 1.)

There is a detail of construction in this circle which I have never heard of elsewhere. In that part of it which is between east and south-east from the centre is an oblong enclosure 22 feet by 11, the east end of which is formed by the circle itself, the other stones of which it is composed being only 3 feet high.

I have no evidence as to its purpose, but it suggests an inner court or sanctuary.

At Swinside (or, as it used to be called, Swineshead), about six miles north from Millom, in Cumberland, and four west from Broughton in Furness, is a circle, the last I have to describe, which Gough (Camden's "*Britannia*," p. 432) says the country people call the "Sunken Kirk," *i.e.*, the church sunk into the earth; a name which, I may point out, suggests a tradition of use for some dead and buried form of public worship. This circle, which is about 90 feet in diameter, has 55 stones remaining, the measurements of which vary from 1 to 8 feet; the entrance, 6 to 7 feet wide, is marked by a second stone placed on each side of it outside the circle, and faces nearly south-east. Gough speaks of some stones sunk in the earth in the centre which are not now visible. I did not find any outlying stones, but there is a very prominent hill almost due south-west from the centre of the circle, and towards the north-east there is a lower group of three summits. I therefore register this circle as having special references to the north-east, south-west, and south-east. (Plate XX, fig. 2.)

It does not appear from the accounts given of these remains by the antiquaries of former generations that they have suffered any great damage during the last hundred years or more, though many unnoted stones near "Long Meg" seem to have been moved and broken within the last thirty years.

Extremely excellent plans and descriptions of the three circles I have just described have been published in the *Journal of the British Archæological Association* (1878) by Mr. C. W. Dymond, C.E., F.S.A., to which I may confidently refer you for any further or more minute details as to the sizes of the stones, &c. Mr. Dymond points out that the stones of all these circles are set in a slight bank, the banks at Keswick and Swinside being composed of small stones so as to make the larger ones stand more steadily; and that, all three being furnished with specially marked entrances, it is more probable that they were used for processional ceremonies of some kind than that they were, as some would have us believe, places of interment and nothing else. Mr. Dymond, who has also surveyed several other circles in the same minutely accurate manner, says, in a letter to me: "I too have in many instances observed the reference of striking features to a north-east and south-west line, but not with sufficient emphasis or consistency to lead to forming any theory on the subject."

On referring to the annexed table, showing the totals of the previous list of eighteen circles added to the tabulated particulars of the three circles just described, we find a vast preponderance

of striking features towards the north-east in particular, and also in the line north-east to south-west, and on looking more minutely at the details of each case we find some other points worthy of note. Where the ground is comparatively flat we find single outlying stones or other circles, but in very hilly countries the single stones seem to lead the eye up to prominent hill-tops, or even to be altogether superseded by them. I have frequently thought that an objection might fairly be made to the connection of the circles with the hills on account of the distance between them, and I was therefore pleased to find, from Sir Charles Warren's book, "*The Temple or the Tomb*," that there was an altar on the Mount of Olives to which the High Priest and his assistants went annually in procession from the Temple at Jerusalem, and where they burnt a heifer, and that this altar was due east or slightly north of east from the sanctuary, according to the Talmud, which says, "All the walls were high except the eastern wall, that the priest who burned the heifer might stand on the top of the Mount of Olives and look straight into the door of the sanctuary when he sprinkled the blood." Taking this fact in conjunction with the vision of Ezekiel (viii, 16), in which he saw "at the door of the temple of Jehovah, between the porch and the altar, about five and twenty men, with their backs toward the temple of Jehovah and their faces toward the east" (that is toward the Mount of Olives), worshipping "the sun toward the east," it would seem probable that this annual procession to the Mount of Olives was in some measure a Judaic concession to an earlier sun worship, such as has been frequent in Christian times and countries; nor is it unlikely that that part of the vision of Ezekiel was simply a statement of a very usual occurrence, for, says Captain Conder in his "*Heth and Moab*"—"The menhir is the emblem of an ancient deity, the circle is a sacred enclosure without which the Arab still stands with his face to the rising sun." My special object, however, in mentioning the Mount of Olives is to show that there is nothing unreasonable in connecting a prominent hill with a sanctuary or circle at a moderate distance from it, and so high a value is attached to anything relating to the temple at Jerusalem that I presume no better instance could be wished for; indeed, I rather fear that this possible similarity may be seized upon by some ingenious people as a 999th identification of the British with the lost tribes, but I would remind any such persons that sun-worship was not so much a Jewish as a Canaanitish practice, or perhaps I should say a practice more or less common to all pagans. An American traveller, Dr. Robinson, says, for instance, of a temple at Baal Hermon, "It fronts directly upon the great chasm, looking up the mighty

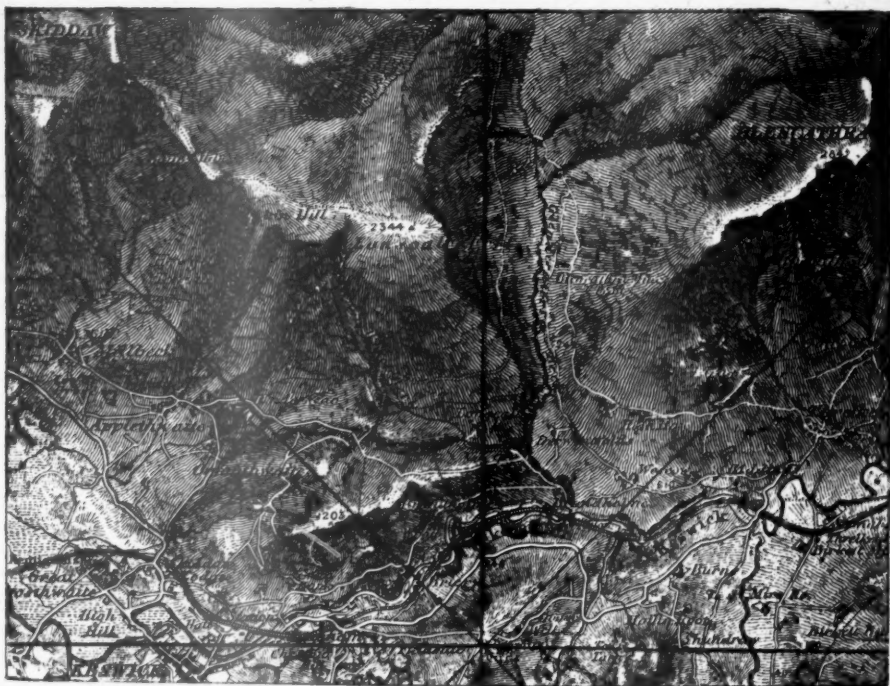
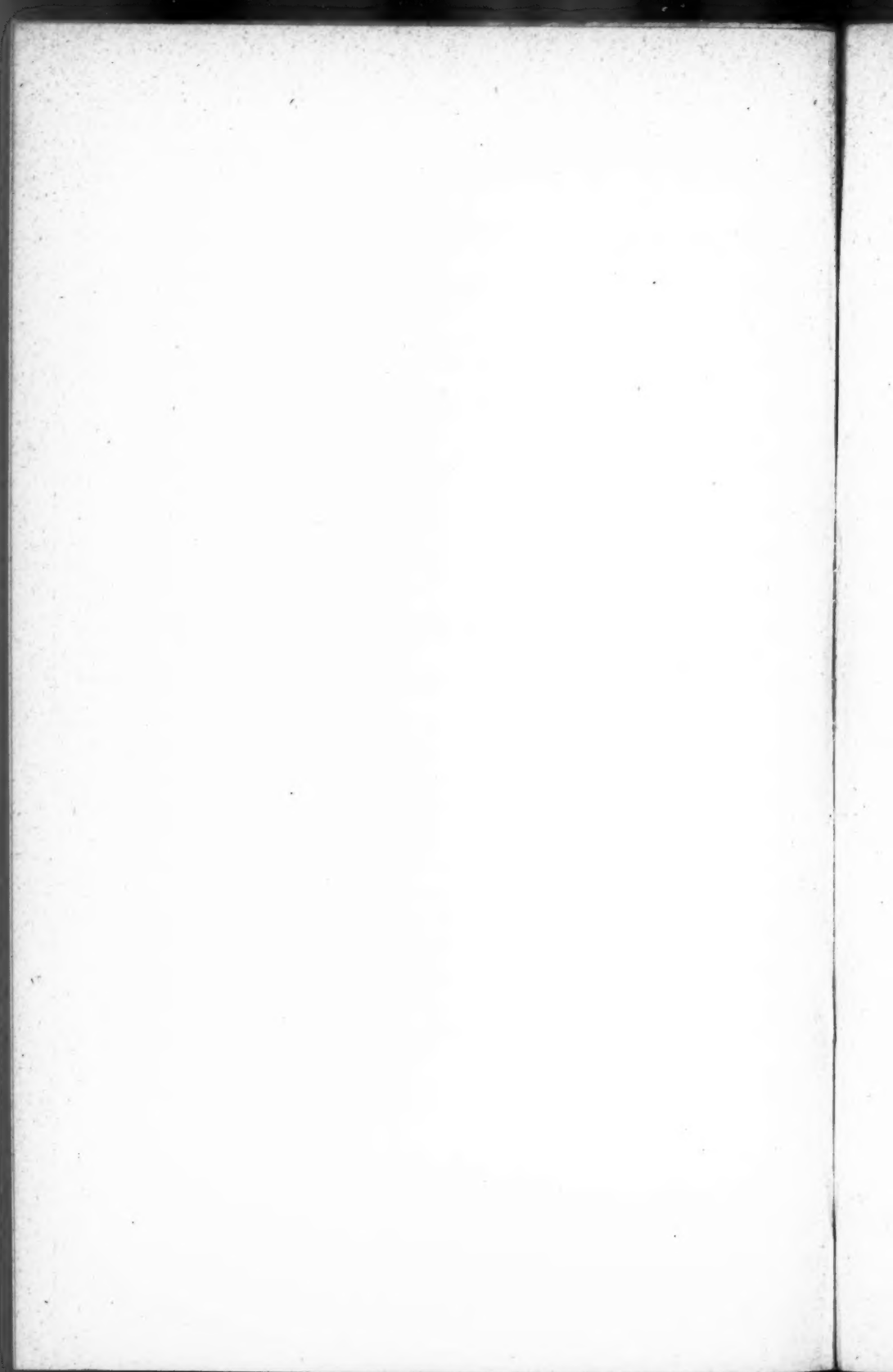


FIG. 1.—THE "DEUID STONES" NEAR KESWICK.



FIG. 2.—CIRCLE AT SWINSIDE, CUMBERLAND.



gorge as if to catch the first beams of the morning sun rising over Hermon."

There is yet another point worth noticing about these outlying hills, which is indeed that which I referred to in the first instance as being particularly remarkable, namely, that on the north-east side of the circle we frequently find a group of three summits instead of a single summit; this is the case at Penmaenmawr, at the Hoar-stone in Shropshire, and at two out of three of the Cumbrian circles I have just described; and it may also be the case elsewhere, without having been noticed even by myself, for it is not until several instances have forced themselves upon one's observation that any importance is attached to them. In other directions than the north-east I have only noticed single summits, and a symbolism of three and one may often be detected in the arrangement of the stones of our rude stone monuments. The Abbé Collet (writing about 1869) says that there is a belief in a certain part of Brittany that the sun rising over the Pic de Malabri presents on Trinity Sunday three discs which afterwards unite in one; here we have the sun and the mountains mixed up with a trinitarian belief in a manner which is doubtless the result of some such ancient superstition or symbolism as I suppose to have influenced the builders of the rude stone monuments. Triple summits, indeed, as, for instance, the Eildon Hills, have always been an object of superstitious traditions, and the life-giving rays of the sun falling into a circle over a triple summit may not unreasonably be regarded as an instance of phallic symbolism.

In the relation between stone circles and adjacent hills and outlying stones, we may therefore find suggestions not only of sun-worship, but of mountain worship and phallic worship, not all of which, however, would necessarily have been any more obvious to every worshipper in the circles than are the emblems which the initiated can trace in the architecture of our own ecclesiastical buildings to every worshipper in them.

Amongst the many curious points connected with this subject of orientation, I must, in conclusion, call your attention to the following:—The sides of all rectangular sacred buildings in Egypt were set north, east, south, and west; but in Chaldea the angles of the sacred buildings, with only one known exception, were set to those points, so that the sides faced north-east, south-east, south-west, and north-west, the north-east side being called the Eastern region (so that the north-east and the east may be regarded as very much the same for all symbolic purposes), the south-east side being called the Southern region, the south-west side the Western region, and the north-west side the Northern region. The Greeks looked on the omens that

appeared to their right as being prosperous, but the Romans looked on those that appeared to their left as being prosperous. Cicero noticed this difference, but I do not know that he or any one else has ever fully explained its cause, which I take to be this:—The Greeks in their augural ceremonies turned their faces to the north, and their right hands to the east, so that the favourable quarter would be in the north-east; but the Romans stood facing the east, so that the north-east or favourable quarter was on their left. We see, then, that both peoples considered the favourable quarter to be the north-east, which is the quarter I have shown to be most favoured by the circle-builders, the south-east aspect being reserved by them for sepulchral chambers and winter altars, even as the statue with a southern aspect at Memphis, which Herodotus speaks of, went by the name of winter, and was entirely neglected, while that which looked to the northward was adored under the name of summer. The small amount of evidence which I have as yet obtained indicates that the Roman temples were placed like those of Egypt, but I am not certain about the Greek buildings; some I know followed the Egyptian rule, but the Lycian tombs, great part of one of which was placed by Sir C. Fellows in the British Museum, followed the Babylonian system. There may even be a certain correlation of the Roman augural position with the Egyptian system of orientation, and of the Greek augural position with the Chaldean system of orientation: for, if a man stood at the north-east or fortunate angle of a square set in the Egyptian manner he might assume either the Greek or the Roman position, probably the latter; but if the square were set in the Chaldean manner, he would almost certainly assume the Greek position. The positions of the outlying stones and hills in reference to the circles seem, however, to be more in accordance with the Chaldean system of orientation than with the Egyptian,¹ nor is this the only thing in which a resemblance may be traced between the customs of Western Europe and Chaldea.² It may be that an indirect Chaldean influence was conveyed in our direction by a Greco-Phœnician channel, and that this question of orientation may hereafter be found to have some small value amongst other things in indicating different lines along which thought and culture have travelled.

¹ The annexed table shows many more references, not only to the north-east, but to the south-west, south-east, and north-west, than to the north, east, south, or west, especially when the proportion between certain and doubtful is taken into account.

² See my paper on "Apparent Coincidences of Custom and Belief among the Ancient Chaldeans and Peoples of Western Europe" in the "*Journ. Anthropol. Inst.*" for 1876.

SECOND LIST OF CIRCLES measured in Southern Britain, showing the nature and direction of any apparent references in them or by external objects, to different points of the compass.¹

Name.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
<i>Long Meg and her Daughters</i> (near Penrith, Cumberland).	...	Stone or stones, formerly standing 60° N. of E. from centre of circle.	...	...	...	"Long Meg" and entrance S.W. from centre of circle.	...	...
<i>Druid's Temple</i> (Kewick, Cumberland).	Entrance at N.	Triple summit of Blencathra Mountain to N.E.	Doubtful. A hill-top.	Largest stone in circle and hill-top in line. Small enclosure in S.E. of quarter of circle. Entrance at S.E.	Doubtful. A hill-top.	...	Doubtful. A hill-top.	Skiddaw Mountain and fallen stone to N.W. ²
<i>Sunken Kirk</i> (Swinside, Cumberland).	...	Three hill-tops to N.E.	...	Entrance at S.E.	...	Summit of Black-combe S.W.	...	A high hill, but not standing out clearly as the others. Doubtful.
Total of second list...	3 1 certain.	3 certain. 15 { 11 certain. 4 doubtful.	1 doubtful. 3 doubtful.	2 certain. 7 { 4 certain. 3 doubtful.	1 doubtful. 4 { 3 certain. 1 doubtful.	2 certain. 6 { 5 certain. 1 doubtful.	1 doubtful. 2 doubtful.	2 { 1 certain. 1 doubtful. 4 { 2 certain. 2 doubtful.
Total of first list ...	18	18 { 14 certain. 4 doubtful.	4 doubtful.	9 { 6 certain. 3 doubtful.	5 { 3 certain. 2 doubtful.	8 { 7 certain. 1 doubtful.	3 doubtful.	6 { 3 certain. 3 doubtful.
Total of both lists ...	21	1	1	1	1	1	1	1

¹ First List published in "Journ. Anthropol. Inst.," November, 1882.² Mr. Dymond has lately suggested to me that this stone may be part of a circle which Stukeley says formerly existed in the next field.

Explanation of Plate XX.

Fig. 1.—Reproduction of part of Sheet 29 (formerly 101, south-east) of the One-inch Ordnance Map of England, showing the relation of the circle near Keswick to Skiddaw and Blencathra.

Fig. 2.—Reproduction of part of Sheet 98, south-west of the One-inch Ordnance Map, showing the position of the Swinside Circle in relation to Blackcombe.

N.B.—In both maps the circles are situated at the junction of the radiating lines, which run due north and south, east and west, north-east and south-west, and north-west and south-east.

DISCUSSION.

Dr. MICHAEL W. TAYLOR, late of Penrith, expressed his estimation of the value of Mr. Lewis' observations on the prehistoric monuments of Cumberland. Probably from not having had his attention directed to the subject, the speaker had failed to observe the point brought forward by the author, of the relation of the principal stones in these circles to the prominent features of the country or to a given direction of the compass. With some of these circles, however, there were connected avenues of stones, notably at Shap, where the direction of the line of stones was from south-east to north-west. On the plateau of Moor Dimmock above Ullswater, he had explored the numerous partially obliterated sepulchral remains which cover that area, and he found cairns and circles connected together by a double line of stones, forming an avenue, extending also in the direction of south-east and north-west. Here also existed the remains of one of the great 100 feet circles, similar to those of Keswick, Eskdale Moor and Gunnerkeld. This, like the above-named circles, contained within the enclosure three or four supplemental cairns or barrows, in this case attached to the inner circumference of the boundary along the northern semicircular segment. In other cases these included cairns lay separate within the area. He referred also to the singular configuration of two cairns existing on Moor Dimmock. From the circumference of these there proceeded three spoke-like projections or pavements of stone, extending radially to a distance of 20 or 30 feet. The directions in which these causeways point are a little to the south of east, to the south, and a little to the north of west. To these he had given the name of "Star-fish cairns." A corroboration of the same formation of structure has been afforded by the discovery lately of a similar cairn at Clava on Culloden Moor.

Mr. LEWIS said that the cairns and circles connected by a double line of stones and the very curious "Star-fish" cairns which Dr. Taylor had mentioned were no doubt sepulchral, and the direction followed by them was that which he had already pointed out as

belonging to sepulchral monuments rather than to those for worship or assembly, namely, north-west to south-east. He was not surprised that the question of the relation of outlying stones and hills had not attracted Dr. Taylor's attention. If he himself had not first made acquaintance with Stonehenge and the Roll-rich, and been led by a similar position of the "Friar's Heel" and the "Kingstone" respectively, in reference to those circles, to look in other cases for what he could find outside the circles, he would probably not have noticed the peculiarities he had pointed out regarding the circles in Cumberland and elsewhere. A Shropshire archæologist, referring to his paper on Shropshire circles, which was published by the Institute, and illustrated by a reproduction from the Ordnance map, had lately written to him saying: "Mitchell's fold, &c., I have often visited, and am surprised at the accuracy of the bearing of the Hoarstone from it; . . . the line you draw on your map over Stapeley Hill is almost exactly correct for the point of sunrise." This gentleman, like Dr. Taylor, though a constant visitor to the monuments of his own county, had not had his attention called to the question of outlying stones and hills, and for that reason only had not noticed the coincidence. The evidence of the Ordnance map on these matters was very gratifying, since they had been prepared long before he had taken the subject up, and by surveyors whose authority could not be questioned.

ANNUAL GENERAL MEETING.

JANUARY 26TH, 1886.

FRANCIS GALTON, ESQ., F.R.S., *President, in the Chair.*

The Minutes of the last Anniversary Meeting were read and signed.

The PRESIDENT declared the ballot open, and appointed Mr. G. M. ATKINSON and Mr. M. J. WALHOUSE scrutineers.

Mr. F. G. H. PRICE, the Treasurer, read the following Report for the year 1885, which was adopted.

TREASURER'S REPORT FOR 1885.

The amount received from subscriptions still shows a steady increase, being £520 16s., against £514 10s. last year; we have also received £48 6s. for arrears, making a total of £569 2s., as against £534 9s. in 1884.

The sale of publications has produced rather less than last year, when the amount received was increased by exceptional sales, including some complete sets.

The total amount received, exclusive of £100 contributed by the Zoological Society towards the cost of Library fittings, has been £694 7s. 5d.; this shows an advance of £22 6s. 6d. upon the corresponding receipts of last year.

On the debit side, the first payment is for rent to the Zoological Society, £163 15s. The cost of printing four numbers of the *Journal* has been £163 3s. 6d., against £206 12s. 9d. last year, and £254 5s. 6d. in 1883. The illustrations have cost £27 8s. 8d., or £4 5s. 1d. less than those of the four previous numbers.

The cost of publishing Mr. Man's monograph on the Andaman Islanders has been £34 17s. 6d., and Miscellaneous printing has cost £28 11s., against £31 4s. 2½d. last year, and £39 6s. 4d. in 1883.

The cost of postage and office expenses shows a slight increase over last year, but is less than in 1883.

The house expenses amount to £42 17s., being a reduction of £13 8s. 4d. on the payments made last year, and being less than the cost of previous years, but this included coals and lights, which are now paid for under the head of rent.

The balance is £176 17s. 11d., against £170 9s. 7½d., showing an increase of £6 8s. 3½d.

The total current expenses of the year have been £46 2s. 11½*d.* less than the current expenses of last year, and £60 5s. 3½*d.* less than in 1883.

The subscriptions in arrear amount to £176 8s., against £139 13s. this time last year; about two-thirds of this may be considered good.

Three life compositions have been received during the year, but as five compounders have died during the same period no money has been invested.

F. G. HILTON PRICE.

Treasurer's Financial Statement.

ANTHROPOLOGICAL INSTITUTE OF GREAT BRITAIN AND IRELAND.

Receipts and Payments for the Year ending 31st December, 1885.

RECEIPTS.			PAYMENTS.		
£	s.	d.	£	s.	d.
BALANCES, January 1st, 1885:			RENT, one year to September, 1885.....		
At Bankers	165	3 1	PRINTING:		163 15 0
In Office.....	5	6 6½	Journal Nos. 48, 49, 50, 51	163	3 6
			Mr. Mau's Monograph	34	17 6
			Miscellaneous	28	11 0
SUBSCRIPTIONS:					
Paid to Messrs. Robarts & Co.	82	19 0	LITHOGRAPHY, &c.	226	12 0
" Collector	437	17 0	SALARIES AND COLLECTOR'S COMMISSION	27	8 8
" " due 1884	48	6 0	POSTAGES:	165	19 1
			Journal	15	14 8
DONATION.....			Letters and Post Cards	16	17 3½
Zoological Society (towards the expenses of Library fittings)			Book Parcels and Circulars	2	4 8
SALE OF PUBLICATIONS:			ADVERTISING	34	16 7½
Messrs. Trübner & Co.	88	7 9	LIBRARY FITTINGS	3	19 8
Messrs. Longmans & Co.	1	0 9	EXPENSES OF EXHIBITING THE LAPPS.	100	0 0
Office:			OFFICE:	1	5 0
Journals.....	2	15 7	Stationery	8	46 10½
Other Publications	0	8 0	Receipt Stamps, &c.	4	0 0
			Insurance	1	0 0
DIVIDENDS:			Carriage of Parcels.....	4	14 1
Four quarters on £900, 3½ per cent. MET.			Miscellaneous	2	14 6½
STOCK	30	10 4			
					21 5 6

HOUSE:		
Assistance and cleaning rooms.....	17 12 0	
Refreshments at Evening Meetings	25 5 0	
	<hr/>	42 17 0
BALANCES:		
At Bankers	171 1 11	
In Office.....	5 16 0	
	<hr/>	176 17 11
	<hr/>	<hr/>
	£964 16 0½	

F. G. HILTON PRICE, *Treasurer.*

Examined and found correct.
 (Signed) EDWARD W. BRABROOK, } *Auditors.*
 J. E. KILLICK, }

January, 1886.

Mr. F. W. RUDLER, the Director, then read the following Report:—

REPORT OF THE COUNCIL OF THE ANTHROPOLOGICAL INSTITUTE
OF GREAT BRITAIN AND IRELAND FOR 1885.

During the past year thirteen ordinary meetings have been held, in addition to the Anniversary Meeting. In the course of the year the following twenty-eight papers have been communicated to the Institute:—

1. "On the People of East Equatorial Africa." By H. H. Johnston, Esq., F.Z.S., F.R.G.S.
2. "Notes on the Race-Types of the Jews." By Dr. A. Neubauer, M.A.
3. "The Racial Characteristics of Modern Jews." By Joseph Jacobs, Esq., B.A.
4. "Certain Burial Customs as illustrative of the Primitive Theory of the Soul." By James G. Fraser, Esq., M.A.
5. "The Sculptured Dolmens of the Morbihan." By Rear-Admiral F. S. Tremlett, F.R.G.S.
6. "The Natives of New Ireland and its Archipelago." By A. J. Duffield, Esq.
7. "Hints on Vision-Testing." By R. Brudenell Carter, Esq., F.R.C.S.
8. "Eyesight of Savage and Civilised People." By C. Roberts, Esq., F.R.C.S.
9. "On the Inhabitants of Tierra del Fuego." By J. G. Garson, Esq., M.D.
10. "The Kekip-Sesoators, or Ancient Sacrificial Stone of the North-West Tribes of Canada." By Mons. Jean L'Heureux.
11. "On the Past and Present Condition of Certain Rude Stone Monuments in Westmoreland." By A. L. Lewis, Esq., F.C.A.
12. "The Origin and Characteristics of the Maoris in the King Country, New Zealand." By J. H. Kerry-Nicholls, Esq., F.R.G.S.
13. "On the Lapps." By Prof. A. H. Keane, B.A.
14. "The Physical Characteristics of the Lapps." By J. G. Garson, Esq., M.D.
15. "The Language of the Eskimo." By Dr. H. Rink.
16. "On the Physical Characteristics of the Natives of the Solomon Islands." By H. B. Guppy, Esq., M.B., F.G.S.
17. "On the Sakais." By Abraham Hale, Esq.
18. "Notes on the Astronomical Customs and Religious Ideas of the Chokitapia or Blackfeet Indians." By Mons. Jean L'Heureux.
19. "Observations on the Mexican Zodiac and Astrology." By Hyde Clarke, Esq.
20. "On the Primary Divisions and Geographical Distribution of Mankind." By James Dallas, Esq., F.G.S.
21. "Experiments on Testing the Characters of School Children." By Mrs. Bryant, D.Sc.
22. "A Comparative Estimate of Jewish Ability." By Joseph Jacobs, Esq., B.A.
23. "Insular Greek Customs." By J. Theodore Bent, Esq.
24. "A Game with a History." By J. W. Crombie, Esq., M.A.
25. "Migrations of the Kurnai Ancestors (Gippeland)." By A. W. Howitt, Esq.
26. "The Nicobar Islanders, with special reference to the Inland Tribe of Great Nicobar." By E. H. Man, Esq.

27. "Ancient British Lake-Dwellings and their relation to Analogous Remains in Europe." By R. Munro, Esq., M.D.

28. "On Three Stone Circles in Cumberland, with further observations on the relation of Circles to outlying Stones and adjacent Hills." By A. L. Lewis, Esq., F.C.A.

In addition to these Papers there have been many contributions to the Institute, some of considerable value, in the shape of notes, and numerous exhibitions of objects of ethnological interest, which have formed prominent features at the evening meetings. On the occasion when Professor Keane read his paper on the Lapps, the Council was fortunate in obtaining permission from the authorities of the Alexandra Palace for the exhibition of a group of Lapps—men, women, and children—accompanied by their dogs, sledges, and other objects illustrative of their mode of life.

The four numbers of the *Journal* for the year, namely, Nos. 50, 51, 52, and 53, have appeared with punctuality. These numbers contain 474 pages of letterpress, with 13 plates of illustrations, and several large folding tables.

The Institute has also published during the year Mr. Man's "Monograph on the Inhabitants of the Andaman Islands," being a revised reprint of three papers which appeared in the *Journal* a year or two ago, accompanied by a paper on the "Language of the Andamanese," by Mr. J. A. Ellis, which was added to the volume at Mr. Man's expense.

During the past year 36 new members have been elected, of whom 34 are Ordinary, and 2 Honorary Members. On the other hand, the Institute has lost, either through death or resignation, 17 Ordinary Members and 5 Compounders.

The former and present state of the Institute, with regard to the number of Members, are shown in the following Table:—

	Honorary.	Corresponding.	Compounders.	Ordinary.	Total.
January 1st, 1885	45	79	91	271	486
Since elected ..	+ 2	..	+ 3	+ 31	+ 36
Since deceased ..	- 4	- 3	- 5	- 2	- 14
Since retired ..	..	..	..	- 15	- 15
January 1st, 1886	43	76	89	285	493

From this table it will be seen that the Institute has acquired

during the year a net gain of 14 annual subscribing members. In addition to these, three new members have compounded.

The Council regrets to report that the Institute has lost through death four Honorary Members, namely, Dr. Lepsius, Dr. Lucae, Prof. Milne-Edwards, and Mr. W. S. W. Vaux; and the following Ordinary Members :—Mr. Luke Burke, Rev. J. Dingle, Dr. Kelburne King, Lieut.-Col. Conway Poole, Dr. Emil Riebeck, Mr. F. Thompson, and Mr. Cornelius Walford.

Brief obituary notices of some of the older members will appear in the *Journal*.

The Library of the Institute has received numerous valuable donations, among which may be specially noticed a large series of photographs of Lapps from Prince Roland Bonaparte; and a collection of about 100 volumes of modern works, chiefly books of travel, presented by Mr. H. Ling Roth.

The Council desires to remind the members that about ten years ago it was empowered to incorporate the Institute under the Companies' Acts. Preliminary steps were accordingly taken at the Board of Trade, but the negotiations were never completed.

The Council has lately had the subject again under serious consideration, and has come to the conclusion that it is advisable to secure the advantages of incorporation at once. With the view of simplifying the Articles of Association several clauses have been struck out of the old body of regulations, and some minor modifications have been introduced. The proposed Articles, in their revised form, will be submitted to the members at the Annual General Meeting, and if adopted, steps will immediately be taken to effect the incorporation.

The adoption of the Report was proposed from the Chair, and carried unanimously.

Mr. BRABROOK explained the alterations proposed to be made in the Regulations.

Mr. RUDLER read the Proposed Memorandum and Articles of Association, and after some discussion and slight verbal alterations,

Mr. BRABROOK moved, and Dr. COFFIN seconded the following resolution :—

“That the revised Regulations submitted by the Council be approved, and adopted as Articles of Association, subject to any modifications that may be required by the Board of Trade, which the Council are hereby empowered to make.” (Carried unanimously.)

The PRESIDENT then delivered the following address :—

PRESIDENT'S ADDRESS.

THE report of the Council has entered so fully into the working of this Institute during the past session, that I think I should weary you if I were to attempt a fresh summary of my own, and to speak again of topics that are still fresh in your memory. It is therefore better that I should select some definite topic in my address, and dwell upon it at length. I will do this now in respect to the subject that has chiefly occupied my attention for some time past.

It will perhaps be recollected that, at the meeting last autumn of the British Association in Aberdeen, I chose for my Presidential Address to the Anthropological Section a portion of the wide subject of "Hereditary Stature." My inquiries were at that time advanced only to a certain stage, but they have since been completed up to a well-defined resting-place, and it is to their principal net results that I shall ask your attention to-night.

I am, happily, released from any necessity of fatiguing you with details, or of imposing on myself the almost impossible task of explaining a great deal of technical work in popular language, because all these details have just been laid before the Royal Society, and will in due course appear in their *Proceedings*. They deal with ideas that are perfectly simple in themselves, but many of which are new and most are unfamiliar, and therefore difficult to apprehend at once. My work also required to be tested and cross-tested by mathematical processes of a very technical kind, dependent in part on new problems, for the solution of which I have been greatly indebted to the

friendly aid of Mr. J. D. Hamilton Dickson, Fellow and Tutor of St. Peter's College, Cambridge. I shall therefore quite dis-embarrass myself on the present occasion from the sense of any necessity of going far into explanations, referring those who wish thoroughly to understand the grounds upon which my results are based, to the forthcoming memoir in the *Proceedings* of the Royal Society, and to that amplified and illustrated extract from my Address at Aberdeen, accompanied by tabular data, which appeared among the "Miscellanea" of the *Journal* of this Institute last November.

The main problem I had in view was to solve the following question. Given a group of men, all of the same stature, whatever that stature may be,—it is required to be able to predict two facts regarding their brothers, their sons, their nephews, and their grandchildren, respectively, namely, *first*, what will be their average height; *secondly*, what will be the percentage of those kinsmen whose statures will range between any two heights we may please to specify:—as between 6 feet and 6 feet 1 inch, 6 feet 1 inch and 6 feet 2 inches.

The same problem admits of another rendering, because whatever is statistically *certain* in a large number is the *most probable* occurrence in a small one, so we may phrase it thus: Given a man of known stature, and ignoring every other fact, what will be the probable average height of his brothers, sons, nephews, grandchildren, &c., respectively, and what proportion of them will probably range between any two heights we please to specify?

I have solved this problem with completeness in a practical sense. No doubt my formulæ admit of extension to include influences of a minor kind, which I am content to disregard, and that more exact and copious observations may slightly correct the values of the constants I use; but I believe that for the general purposes of understanding the nearness of kinship in stature that subsists between relations in different degrees, the problem is solved.

It is needless to say that I look upon this inquiry into stature as a representative one. The peculiarities of stature are that the paternal and maternal contributions blend freely, and that selection, whether under the aspect of marriage selection or of the survival of the fittest, takes little account of it. My results are presumably true, with a few further reservations, of all qualities or faculties that possess these characteristics.

Average Statures.—The solution of the problem as regards the average height of the kinsmen proves to be almost absurdly simple, and not only so, but it is explained most easily by a working model that altogether supersedes the trouble of calculation. I exhibit one of these: it is a large card ruled with horizontal lines 1 inch apart, and numbered consecutively in feet and inches, the value of 5 feet 8 inches lying about half way up. A pin-hole is bored near the left-hand margin at a height corresponding to 5 feet $8\frac{1}{4}$ inches. A thread secured at the back of the card is passed through the hole; when it is stretched it serves as a pointer, moving in a circle with the pin-hole as a centre. Five vertical lines are drawn down the card at the following distances, measured horizontally from the pin-hole: 1 inch, 2 inches, 3 inches, 6 inches, 9 inches. For brevity I will call these lines I, II, III, VI, and IX respectively. This completes the instrument. To use it: Hold the stretched thread so that it cuts IX at the point where the reading of the horizontal lines corresponds to the stature of the given group. Then the point where the string cuts VI will show the average height of all their brothers; where it cuts III will be the average height of the sons; where it cuts II will be the average height of the nephews; and where it cuts I will be the average height of the grandchildren. These same divisions will serve for the converse kinships; VI, obviously so; III, son to a parent; II, nephew to an uncle; I, grandson to a grandfather. Another kinship can be got from VI, namely, that between "mid-parent" and son. By "mid-parental" height I mean the average of the two statures: (a) the height of the father, (b)

the transmuted height of the mother. This process, I may say, is fully justified by the tables already printed in our *Journal*, to which I have referred. (It is a rather curious fact that the kinship between a given mid-parent and a son should appear from my statistics to be of exactly the same degree of nearness as that between a given man and his brother.) Lastly, if we transmute the stature of kinswomen to their male equivalents by multiplying them (in inches) by 1.08, or say, very roughly, by adding at the rate of 1 inch for every foot, the instrument will deal with them also.

You will notice that the construction of this instrument is based on the existence of what I call "regression" towards the level of mediocrity (which is 5 feet $8\frac{1}{4}$ inches), not only in the particular relationship of mid-parent to son, and which was the topic of my address at Aberdeen, but in every other degree of kinship as well. For every unit that the stature of any group of men of the same height deviates upwards or downwards from the level of mediocrity as above, their brothers will on the average deviate only two-thirds of a unit, their sons one-third, their nephews two-ninths, and their grandsons one-ninth. In remote degrees of kinship, the deviation will become zero; in other words, the distant kinsmen of the group will bear no closer likeness to them than is borne by any haphazard group of the general population.

The *rationale* of the regression from father to son is largely to be ascribed (as was fully explained in the Address) to the double source of the child's heritage. That heritage is derived partly from a remote and numerous ancestry, who are on the whole like any other sample of the past population, and therefore mediocre, and partly only from the persons of the parents. Hence the parental peculiarities are transmitted in a diluted form, and the child tends to resemble, not his parents, but an ideal ancestor who is always more mediocre than they. The *rationale* of the regression from a known man to his unknown brother is due to a compromise between two conflicting pro-

babilities: the one that the unknown brother should differ little from the known man, the other that he should differ little from the mean of his race. The result can be mathematically shown to be a ratio of regression that is constant for all statures. The results of observation accord with, and are therefore confirmed by, this calculation.

Variability of Kinsmen above and below their Mean Stature.—

Here the net result of a great deal of laborious work proves, as in the previous case, to be extremely simple, and to be very easily expressed by a working model. A set of four scales can be constructed, such as I exhibit, one appropriate to each of the lines, I, II, III, and VI, and suitable for any position on these lines. They are so divided that when the centres of the scales are brought opposite to the points crossed by the thread, in the way already explained, we shall see from the divisions on the scales what are the limits of stature between which successive batches of the kinsmen, each batch containing 10 per cent. of their whole number, will be included. Smaller divisions indicate the 5 per cent. limits, or even narrower ones. The extreme upper and extreme lower limits are perforce left indefinite. Each of the scales I give deals completely with 99 per cent. of the observations.

The principal divisions on the movable scales that are appropriate to the several lines VI, III, II, and I, are given in the Table.

Per-cents. of included statures.		Divisions, upwards and downwards, from centres of the scales; in inches.			
		VI.		III.	II and I.
10	..	0.5		0.6	0.6
20	..	1.0	..	1.3	1.3
30	..	1.6	..	2.0	2.1
40	..	2.4	..	3.0	3.1
45	..	3.1	..	3.9	4.0
49.5	..	4.8	..	6.1	6.3

The divisions are supposed to be drawn at the distances there given, both upwards and downwards from the centres of the several scales, which have to be adjusted, by the help of the thread, to the average height of the kinsmen indicated in the

several lines. The percentage of statures that will then fall between the centre of each scale and the several divisions in it is given in the first column of the table. Example:—In line VI, 40 per cent. will fall between the centre and a point 2·4 inches above it, 40 per cent. will fall between the centre and a point 2·4 inches below it; in other words 80 per cent. will fall within a distance of 2·4 inches from the centre. Similarly we see that $2 \times 49\cdot5$, or 99 per cent. will fall within 4·8 inches of the centre.

In respect to the principle on which these scales are constructed, observation has proved that every one of the many series with which I have dealt in my inquiry, conforms with satisfactory closeness to the "law of error." I have been able to avail myself of the peculiar properties of that law and of the well-known "probability integral" table, in making my calculations. A very large amount of cross-testing has been gone through, by comparing secondary data obtained through calculation with those given by direct observation, and the results have fully justified this course. It is impossible for me to explain what I allude to more minutely now, but much of this work is given, and more is indicated, in the forthcoming memoir to which I have referred.¹

I know of scarcely anything so apt to impress the imagination as the wonderful form of cosmic order expressed by the "law of error." A savage, if he could understand it, would

¹ The following will be of help to those who desire a somewhat closer idea of the reasoning than I can give in a popular address:—

m = mean height of race = 68·25 inches.

$m \pm x$ = height of a known individual.

$m \pm x'$ = the probable height of an unknown kinsman in any given degree.

$\frac{x'}{x}$ (which I designate by w) = the ratio of mean regression: it is shown by direct observation to be $\frac{1}{2}$ both in the case of mid-parent to son, and of man to brother; it is inferred to be $\frac{1}{2}$ in the case of parent to son. It is upon these primary kinships that the rest depend.

The "probable" deviations ("errors") from the mean values of their respective systems are—

p = that of the general population = 1·70 inch.

b = that of any large family of brothers = 1·0 inch.

f = that of kinsmen from the mean value of $m \pm x'$.

Since a group of kinsmen in any degree may be considered as statistically

worship it as a god. It reigns with serenity in complete self-effacement amidst the wildest confusion. The huger the mob and the greater the anarchy the more perfect is its sway. Let a large sample of chaotic elements be taken and marshalled in order of their magnitudes, and then, however wildly irregular they appeared, an unsuspected and most beautiful form of regularity proves to have been present all along. Arrange the statures side by side in order of their magnitudes, and the tops of the marshalled row will form a beautifully flowing curve of invariable proportions; each man will find, as it were, a pre-ordained niche, just of the right height to fit him, and if the class-places and statures of any two men in the row are known, the stature that will be found at every other class-place, except towards the extreme ends, can be predicted with much precision.

It will be seen from the large values of the ratios of regression how speedily all peculiarities that are possessed by any single individual to an exceptional extent, and which blend freely together with those of his or her spouse, tend to disappear. A breed of exceptional animals, rigorously selected and carefully isolated from admixture with others of the same race, would become shattered by even a brief period of opportunity to marry freely. It is only those breeds that blend imperfectly with others, and especially such of these as are at the same time prepotent, in the sense of being more frequently transmitted than their competitors, that seem to have a chance of maintaining themselves when marriages are not rigorously controlled—as indeed they never are, except by professional breeders. It is on these grounds that I hail the appearance of every new and valuable type as a fortunate and most necessary occurrence in the forward progress of evolution. The precise way in which a new type comes into existence is untraced, but we may well suppose that the different possibilities in the identical with a sample of the general population, we get a general equation that connects f with w , namely, $w^2p^2 + f^2 = p^2$.

The ratio of regression in respect to brothers can be shown to depend on the equation $w = \frac{p^2 - b^2}{p^2} = \frac{2}{3}$ nearly.

groupings of some such elements as those to which the theory of pangenesis refers, under the action of a multitude of petty causes that have no teleological significance, may always result in a slightly altered, and sometimes in a distinctly new and a fairly stable position of equilibrium, and which, like every other peculiarity, admits of hereditary transmission. The general idea of such a process is easy enough to grasp, and is analogous to many that we are familiar with, though the precise procedure is beyond our ken. As a matter of fact, we have experience of frequent instances of "sports" useful, harmful, and indifferent, and therefore presumably without teleological intent. They are also of various degrees of heritable stability. These form fresh centres, towards which some at least of the offspring have an evident tendency to revert. By refusing to blend freely with other forms, the most peculiar "sports" admit of being transmitted almost in their entirety with no less frequency than if they were not exceptional. Thus a grandchild, as we have seen, regresses on the average one-ninth. Suppose the grandfather's peculiarity refused to blend with those of the other grandparents, then the chance of his grandson inheriting that peculiarity in its entirety would be as one to nine; and, so far as the new type might be prepotent over the other possible heritages, so far would the chance of its reappearance be increased. On the other hand, if the peculiarity blends easily, and if it was exceptional in magnitude, the chance of inheriting it to its full extent would be extremely small.¹ The

¹ The chance that the stature of the son will at least rival the stature of the father is not uniform; it varies with the stature of the father. The following table shows the value of the probability in various cases. Columns A contain the height of the fathers; the columns B show how many *per cent.* of the sons will be of at least the same height as their fathers.

A.		B.	A.		B.	A.		B.
feet.	inches.	per cent.	feet.	inches.	per cent.	feet.	inches.	per cent.
5	8½	50	6	0	15	6	4	1·4
5	9	42	6	1	9	6	5	9·7
5	10	31	6	2	5	6	7	0·3
5	11	22	6	3	3			

probability (easily to be calculated for any given instance by the "probability integral" tables) might even be many thousand times smaller. I will give for an example a by no means extreme case. Suppose a large group of men, all of 6 feet 5 inches in height, the statures of whose wives are haphazard, then it can be shown that, on an average, out of every thousand of the sons not more than seven will rival or surpass the height of his father. This consideration is extremely important in its bearing on the origin of species. I feel the greatest difficulty in accounting for the establishment of a new breed in a state of freedom by slight and uncertain selective influences, unless there has been one or more abrupt changes of type, many of them perhaps very small, but leading firmly step by step, though it may be along a devious track, to the new form.

It will be of interest to trace the connection between what has been said about hereditary stature and its application to hereditary ability. Considerable differences have to be taken into account and allowed for. *First*, after making large allowances for the occasional glaring cases of inferiority on the part of the wife to her eminent husband, I adhere to the view I expressed long since as the result of much inquiry, historical and otherwise, that able men select those women for their wives who on the average are not mediocre women, and still less inferior women, but those who are decidedly above mediocrity. Therefore, so far as this point is concerned, the average regression in the son of an able man would be less than one-third. *Secondly*, very gifted men are usually of marked individuality, and consequently of a special type. Whenever this type is a stable one, it does not blend easily, but is transmitted almost unchanged, so that specimens of very distinct intellectual heredity frequently occur. *Thirdly*, there is the fact that men who leave their mark on the world are very often those who, being gifted and full of nervous power, are at the same time haunted and driven by a dominant idea, and are therefore within a measurable distance of insanity. This weakness will

probably betray itself occasionally in disadvantageous forms among their descendants. Some of these will be eccentric, others feeble-minded, others nervous, and some may be downright lunatics.

It will clear our views about hereditary ability if we apply the knowledge gained by our inquiry to solve some hypothetical problem. It is on that ground that I offer the following one. Suppose that in some new country it is desired to institute an Upper House of Legislature consisting of life-peers, in which the hereditary principle shall be largely represented. The principle of insuring this being that (say) two-thirds of the members shall be elected out of a class who possess specified hereditary qualifications, the question is, What reasonable plan can be suggested of determining what those qualifications should be?

In framing an answer, we have to keep the following principles steadily in view:—(1) The hereditary qualifications derived from a single ancestor should not be transmitted to an indefinite succession of generations, but should lapse after, say, the grandchildren. (2) All sons and daughters should be considered as standing on an equal footing as regards the transmission of hereditary qualifications. (3) It is not only the sons and grandsons of ennobled persons who should be deemed to have hereditary qualifications, but also their brothers and sisters, and the children of these. (4) Men who earn distinction of a high but subordinate rank to that of the nobility, and whose wives had hereditary qualifications, should transmit those qualifications to their children. I calculate roughly and very doubtfully, because many things have to be considered, that there would be about twelve times as many persons hereditarily qualified to be candidates for election as there would be seats to fill. A considerable proportion of these would be nephews, whom I should be very sorry to omit, as they are twice as near in kinship as grandsons. One in twelve seems a reasonably severe election, quite enough to draft off the eccentric and incompetent, and not too severe to discourage the ambition of the

rest. I have not the slightest doubt that such a selection out of a class of men who would be so rich in hereditary gifts of ability, would produce a senate at least as highly gifted by nature as could be derived by ordinary parliamentary election from the whole of the rest of the nation. They would be reared in family traditions of high public services. Their ambitions, shaped by the conditions under which hereditary qualifications could be secured, would be such as to encourage alliances with the gifted classes. They would be widely and closely connected with the people, and they would to all appearance—but who can speak with certainty of the effects of any paper constitution?—form a vigorous and effective aristocracy.

I will not make any further claim on your kind attention to-night. There has been much business, the meeting has been a long one, and it is late. But before sitting down I should deny myself a pleasure if I did not advert to the many agreeable and instructive evenings that we have spent during the past session in this room, and to the apparently growing success of the Anthropological Institute. No small part of that success, and of the stability of this Society, is due, in my opinion, to the unostentatious, solid and judicious management of our Director that was, but whom I must now call by his new title, our Secretary, Mr. Rudler, and I am grateful for this opportunity of making so public an acknowledgment of his help. It now remains to express a fervent wish, that I know you will all share, that our Institute may continue to progress and ever worthily to fill its important and self-adopted post of the representative of Anthropology in this country.

It was moved by Professor FLOWER, seconded by Dr. BEDDOE, and carried unanimously—

“That the thanks of the meeting be given to the President for his address, and that it be printed in the *Journal* of the Institute.”

The SCRUTINEERS gave in their report, and the following gentlemen were declared to be duly elected to serve as Officers and Council for the year 1886 :—

President.—Francis Galton, Esq., M.A., F.R.S.

Vice-Presidents.—Hyde Clarke, Esq. ; Lieut.-Col. H. H. Goodwin-Austen, F.R.S. ; Prof. A. H. Keane, B.A.

Secretary.—F. W. Rudler, Esq., F.G.S.

Treasurer.—F. G. H. Price, Esq., F.S.A.

Council.—S. E. B. Bouverie-Pusey, Esq. ; Sir W. Bowman, Bart. ; E. W. Brabrook, Esq., F.S.A. ; Sir George Campbell, K.C.S.I. ; C. H. E. Carmichael, Esq., M.A. ; W. L. Distant, Esq. ; A. W. Franks, Esq., M.A., F.R.S. ; J. G. Garson, Esq., M.D. ; A. L. Lewis, Esq. ; Prof. A. Macalister, F.R.S. ; R. Biddulph Martin, Esq. ; Prof. Meldola, F.C.S. ; Prof. Moseley, F.R.S. ; C. Peek, Esq., M.A. ; J. E. Price, Esq., F.S.A. ; Charles H. Read, Esq., F.S.A. ; Charles Roberts, Esq., F.R.C.S. ; Lord Arthur Russell, M.P. ; Prof. G. D. Thane ; M. J. Walhouse, Esq., F.R.A.S.

Dr. GARSON moved, and Mr. COLLINGWOOD seconded, a vote of thanks to the retiring members of the Council, to the Auditors, and to the Scrutineers, which was carried unanimously.

ANTHROPOLOGICAL MISCELLANEA.

THIRD ANNUAL REPORT of the BUREAU of ETHNOLOGY

To the Secretary of the Smithsonian Institution, 1881-2.

THE Third Annual Report of the Washington Bureau of Ethnology, under the able directorate of Major Powell, although not quite so profusely illustrated as its predecessors, is not one whit behind them in interest.

The Bureau of Ethnology is doing excellent work in encouraging and promoting the systematic examination of all American antiquities, whether consisting of relics from the grave mounds; Mexican, Peruvian, and Central American sculptures, paintings, and pottery; or the still more intricate subjects of language, religion, myths, customs, &c. The volume before us contains articles upon all these subjects, commencing with an account of the work of the Bureau during the year. The field work appears to have been very actively carried out, and to have been productive of an immense amount of information, as well as of innumerable relics of value, to add to the already stupendous collection at Washington.

Mr. Cushing continues his researches among the Zunis and another isolated tribe known as the Coconinos, who have their habitations three thousand feet below the level of the plains, and who would appear to be the people, the smoke from whose village was seen by the Ives expedition. In Western Arizona he also discovered some remarkable strongholds, and is now completing his investigations into the religious orders and dance societies of the Zunis. Mr. Stevenson has added largely to the collections from the ancient ruins of Arizona and New Mexico. Mrs. Erminnie Smith has been busily engaged in continuing her Iroquoian investigations. Mr. Gatschet has been usefully employed in studying the language and customs of several tribes now almost extinct, whilst various other workers have given their time to the exploration of mounds in Tennessee, Arkansas, Ohio, Virginia, and Florida.

The office work is not less valuable, including dictionaries of Indian languages, and additions to several of the valuable articles which have already appeared, among which may be especially mentioned "Gesture and Sign Language" by Colonel Garrick Mallery, and "Mortuary Customs and Medical Practices" by Dr. H. C. Yarrow.

Of the publications of the year three papers, each of great interest, were published in Vol. V of "Contributions to North American Ethnology," a copy of which was presented to the Institute; they were entitled—I. "Observations on Cup-shaped and other Lapidarian Sculptures," by Charles Rau, in which these sculptures in America are compared with those in the Eastern Hemisphere, and the conclusion is arrived at that a continued connection must have subsisted between America and Asia. II. "On Prehistoric Trephining and Cranial Amulets," by Robert Fletcher, M.R.C.S.Eng., for which Professor Broca's valuable pamphlet is taken as a text-book, the latest discoveries of the extension of the practice being added, as also a description of different modes of procedure. Dr. Fletcher seems to agree with Broca as to the object of these mutilations, which I had the honour of bringing to the notice of the Institute some years ago. III. "A Study of the Manuscript Troano," by C. Thomas, Ph.D., a very learned and elaborate paper, which, with a paper by the same author in the volume before us, entitled "Notes on Certain Maya and Mexican Manuscripts," seems likely to lead to the decipherment of Mexican hieroglyphs. The characters Mr. Thomas regards as to a certain extent phonetic, although not alphabetic, but syllabic; whilst some appear to be ideographic, and others simple abbreviated pictorial representations of objects. The manuscript Troano Mr. Thomas looks upon as intended as a ritual or religious calendar, to guide the priests in the observance of religious festivals, and in their numerous ceremonies and other duties. In the second paper Mr. Thomas compares the Maya and Mexican symbols and calendars, and from the study of both comes to the conclusion, first, that the groups and characters must be read around to the left, or opposite to the course of the sun; second, that the cross was used to symbolise the cardinal points; third, that the bird figures were used to denote the winds; fourth, that an intimate relation subsisted between the Mayan and Nahuattan tribes, and that the Mexican was the older form of hieroglyph, and consequently that the monuments of Yucatan and Copan are of later date than is generally supposed. This conclusion will not, we think, be readily accepted; the whole of the surroundings of the Copan and Yucatan monuments seem to speak of great antiquity, and if they were really derived from those of Mexico, they would rather tend to enhance the age of the latter. The most interesting and perhaps the most important paper of the present volume, from an anthropological point of view, is that on "Masks, Labrets, and certain Aboriginal Customs," by William H. Dall. In it the author treats of the origin of masks and the development in their use from a simple shield or protection to the face, to that of a social or religious symbol, worn elevated above the head to increase the height of the wearer, and also to the mask of death, placed over the face to hide it from evil spirits, leading to the preservation and ornamentation of the actual human face or head. Masks are classed by Mr. Dall as masks, maskettes, and maskoids, according

to their form and use, maskette being applied to objects resembling masks but worn above or below the face, and maskoid to those not intended to be worn at all, and consequently generally imperforate. The geographical distribution of masks is given by Mr. Dall as—1. North Papuan Archipelago; 2. Peru; 3. Central America and Mexico; 4. New Mexico and Arizona; 5. The region occupied by Indians from Oregon to the northern limit of the Thlinkit; 6. The Aleutian Islands; 7. The Eskimauan region from Prince William Sound to Point Barrow. This is a tolerably wide distribution, but it might have been extended to a great part of the Eastern hemisphere, and to a very remote epoch, especially as regards the mask for the dead, as witness those of gold discovered by Dr. Schliemann at Mycenæ. The illustrations of this paper are numerous and most useful to the student, one point of especial interest being the similarity, or it may be said the *identity*, of the carvings on the rattle of the Thlinkit, and figures from Mexico and Nicaragua, with masks from the South Seas. This leads Mr. Dall to the conclusion that America was visited, at different times, by people from the islands of the Pacific, a conclusion also adduced from the use of labrets and of tattooing.

Dr. Washington Matthews, who wrote upon Navajo Silversmiths in the second volume of the Reports, gives a paper on Navajo Weavers, beautifully illustrated and of great interest; whilst "Omaha Sociology," by the Rev. J. Owen Dorsey, will have many students, especially with regard to the tribal customs and affinities as affecting marriage regulations; whilst the paper by Mr. W. H. Holmes, on "Prehistoric Textile Fabrics of the United States derived from Impressions on Pottery," is highly suggestive. Mr. Holmes, by taking plaster casts from ancient pottery, gets an impression of the material used in ornamentation, in so perfect a manner that the mode of weaving or plaiting the cloth or mats so employed can be seen at a glance. It is to be hoped that this method may be extended to the ancient pottery of Europe and Japan, that a comparison may be instituted with regard to the modes of plaiting and weaving, and the materials employed in various countries. The remainder of the volume is taken up with the illustrated catalogue of a portion of the collection made by the Bureau of Ethnology during 1881, and a very formidable catalogue it is, but also extremely useful, as showing the locality and surroundings of the several finds, and giving illustrations of the more important of them.

A. W. BUCKLAND.

OBITUARY NOTICES.

Mr. LUKE BURKE, who died last August, was an original member of the Anthropological Institute, having joined the pre-existing Ethnological Society in 1861. A sketch of his work, from the pen of one of our members, the Rev. George St. Clair, F.G.S., appeared in "The Inquirer" for December 26th, 1885. Several ethnological periodicals were at various times started by Mr. Burke. In January, 1854, he launched a magazine under the title of "The Ethnological Journal," but only a single number appeared. In July, 1865, Mr. Burke made another attempt, and his new "Ethnological Journal" continued to appear monthly until March of the following year. Mr. Luke Burke contributed to this *Journal* articles on "The Place of Man in the Animate Scale," "On the Mythological Aspects of Ancient and Mediæval Chronology," and on the "Principles of Ethnology considered as an organised Science." In 1860 Mr. Burke started a monthly journal entitled "The Future," which, like his other serials, had only a brief existence. Mr. St. Clair refers to the lucid speeches which Mr. Burke occasionally contributed to the discussions at the meetings of the Ethnological Society under Mr. Crawford, and in later years at the meetings of the Anthropological Institute.

Dr. KELBURNE KING, of Hull, who had been a member of the Anthropological Society from 1864, and passed over to the Anthropological Institute as one of the original members, died suddenly on January 2nd, 1886. From a sketch of his life in *The Eastern Morning News*, forwarded to the Institute by Mr. C. Staniland Wake, the following particulars are taken. Dr. King was born on January 22nd, 1823, at Kilmalcolm, in Renfrewshire. In 1844 he graduated M.D. at Edinburgh. About thirty-five years ago he settled in Hull, and became surgeon to the Hull Infirmary. He subsequently held the post of Lecturer on Anatomy, and, at a later date, of Surgery, in the Hull and East Riding School of Medicine. As a student he had acted as demonstrator to Dr. Robert Knox. For many years Dr. King occupied the position of President of the Literary and Philosophical Society of Hull, and displayed great activity in promoting the interests of this Institution. Many of his presidential addresses and lectures have been published. On three occasions Dr. Kelburne King served as Mayor of Hull, and was conspicuously active in all local work of an educational, sanitary, and philanthropic character.

A long memoir of the late Dr. LEPSIUS, the eminent Egyptologist of Berlin, and an Honorary Member of the Anthropological Institute, appeared in the Report of the last Anniversary Meeting of the Royal Society of Literature. This obituary notice was contributed by Mr. C. H. E. Carmichael, M.A., the Hon. Foreign Secretary of the Society.

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